

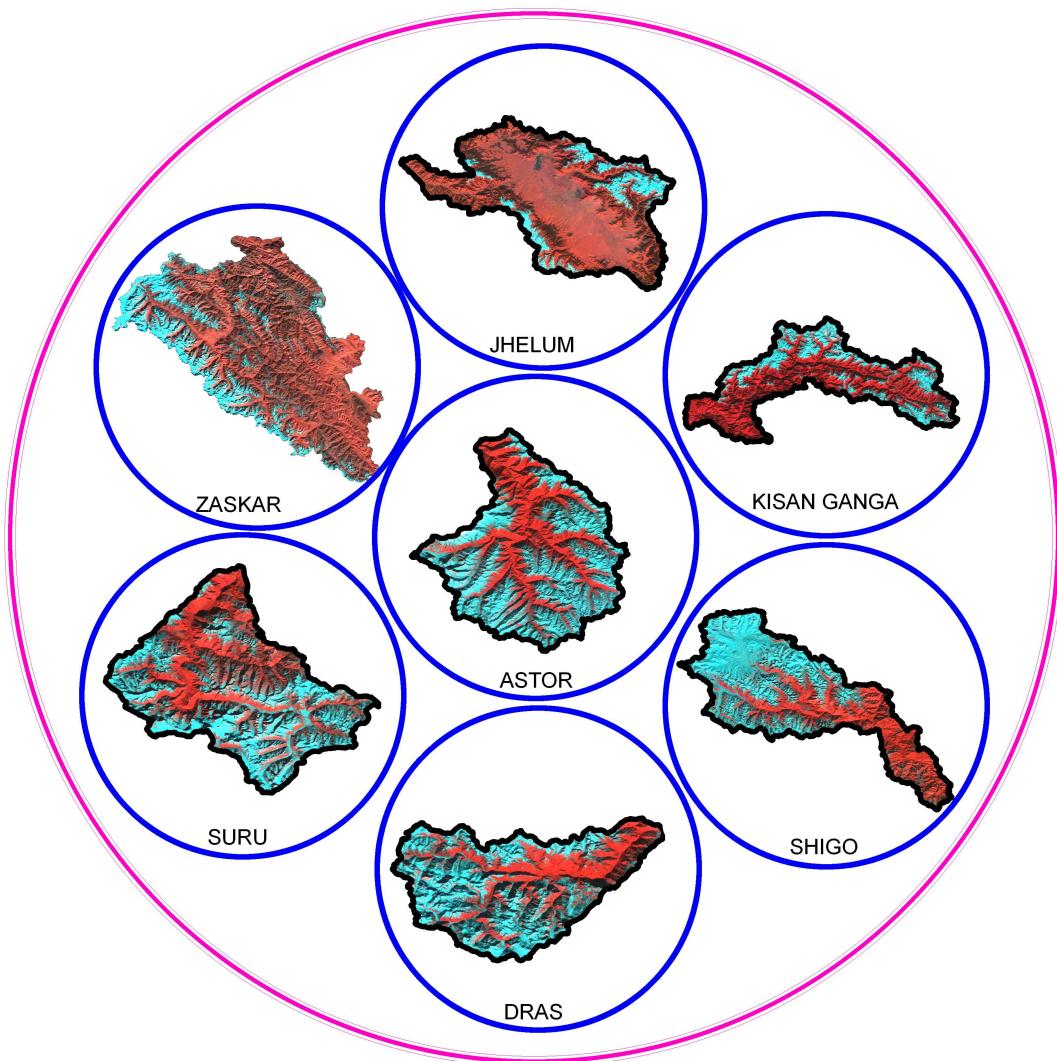
# **SNOW COVER ATLAS OF THE INDUS BASIN**

Sub basins

Jhelum, Kisan Ganga, Astor, Shigo, Dras, Suru and Zaskar.

(A Joint Project of Indian Space Research Organization and  
Ministry of Environment and Forests, Govt. of India)

Year 2009 -10



Space Applications Centre (ISRO)  
Ahmedabad - 380015

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**Volume I**



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Title	Snow cover Atlas of the Indus basin
Type of Report	Scientific Report
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Originating Unit	Geo Sciences Division, Marine, Geo and Planetary Sciences Group, Earth, Ocean, Atmosphere, Planetary Sciences and Applications area, Space Applications Centre (ISRO), Ahmedabad-15
Abstract	This atlas gives subbasin-wise distribution of snow cover in the Indus basin from October 2009 to June 2010. The subbasins included in this report are Jhelum, Kisan ganga, Astor, Shigo, Dras, Suru and Zaskar. The areal extent of snow cover was estimated in fully automatic mode using Normalized Difference Snow Index (NDSI) based algorithm. For this purpose AWIFS sensor of Resourcesat satellite was used. This atlas gives snow cover products, statistics and seasonal snow depletion curve. It is expected that this data will be useful for hydrological and climatological applications.
Key words	Snow cover, NDSI, AWIFS, depletion curve, Jhelum, Kisan ganga, Astor, Shigo, Dras, Suru and Zaskar basins.
Security Classification	Unrestricted
Distribution	Among concerned

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## **1. Introduction**

Snow covers almost 40 per cent of the Earth's land surface during Northern Hemisphere winter. This makes albedo and areal extent of snow as important component of the Earth's radiation balance (Foster and Chang, 1993). In addition, large areas in the Himalayas are also covered by snow during winter. Area of snow can change significantly during winter and spring. This can affect stream flow for rivers originating in the higher Himalayas. All the rivers originating from higher Himalayas receive almost 30-50 % of annual flow from snow and glacier melt run off (Agarwal et al., 1983). In addition, snow pack ablation is highly sensitive to climatic variation. Increase in atmospheric temperature can influence snowmelt and stream runoff pattern (Kulkarni et al., 2002). Therefore, mapping of the areal extent and reflectance of snow are important parameter for various climatological and hydrological applications. In addition, extent of snow cover can also be used as input for numerous other applications.

Mapping and monitoring of seasonal snow cover using field methods are normally very difficult in a mountainous terrain, like the Himalayas. Therefore, remote sensing techniques have been extensively used for snow cover monitoring. Snow cover monitoring using satellite images were started by using the TIROS-1 satellite from April 1960 (Singer and Popham 1963). Since then, the potential for operational satellite-based mapping has been enhanced by the development of higher temporal frequency and satellite sensors with higher spatial resolution. In addition, satellites with better radiometric resolutions, such as NOAA have been used successfully for snow mapping (Hall et al., 1995). This is possibly due to the distinct spectral reflectance characteristics of snow in visible and near infrared regions. India has launched series of Indian Remote Sensing satellite (IRS) to study the different earth resources. Previously launched satellites have flown with many sensors having different spatial, temporal and spectral resolutions. Recently launched RESOURCESAT-1 satellite has three different sensors namely LISS III, LISS IV & AWIFS with different spatial, temporal and spectral resolutions as desired for different applications. AWIFS (Advanced Wide Field Sensor) is an advanced version of earlier Indian satellite sensor WiFS (Wide Field Sensor) with improved spectral and spatial resolutions maintaining the same repetitivity. There are a series of other polar orbiting satellites, like Landsat, NOAA and MODIS etc., which have provided information on different aspects of

snow. Geo-stationary satellites also proved their utility in mapping/monitoring the snow-covered regions. Information generated from satellite observations has been extensively used for snowmelt runoff modeling (Kulkarni et al., 1997).

## **2. Study Area:**

This Atlas gives distribution of snow cover in seven subbasins of the Indus basin. These are Jhelum, Kisan ganga , Astor, Shigo, Dras, Suru and Zaskar sub basins. Locations of these basins are shown in Figure 1.

## **3. Data used:**

AWiFS data from October 2009 to June 2010 were used in this study.

## **4. Normalised Difference Snow Index (NDSI):**

In general, the reflectance of snow is high at the red end of the visible spectrum. It tends to decline in the near-infrared region until 1090 nm, where slight gain in reflectance occurs and gives a minor peak at approximately 1090 to 1100 nm. One of the important difficulties in snow cover monitoring is the presence of cloud cover. Cloud has strong reflectivity in visible, NIR and SWIR regions while snow absorbs in SWIR, and this difference can be utilized for snow/cloud discrimination. Normalized Difference Snow Index (NDSI) utilize the normalized ratio of green and SWIR and is used as an automated approach for snow mapping addressing the shadow and cloud problems in snow bound areas.

Normalized Difference Snow Index was calculated using the ratio of green wavelength (band 2) and SWIR (band 5) of AWiFS sensor:

$$\text{Normalized Difference Snow Index(NDSI)} = (\text{band 2} - \text{band 5}) / (\text{band 2} + \text{band 5}) \quad ..(1)$$

To estimate NDSI, DN numbers were converted into reflectance. This involves conversion of digital numbers into the radiance values, known as sensor calibration, and then estimation of reflectance from these radiance values. Various parameters needed for estimating spectral reflectance are maximum and minimum radiances and mean solar exo-atmospheric spectral irradiances in the satellite sensor bands, satellite data acquisition time, solar declination, solar zenith and solar azimuth angles, mean Earth-Sun distance etc. (Markham and Barker, 1987; Srinivasulu and Kulkarni, 2004).

## **5. Snow cover monitoring algorithm**

An algorithm is developed to provide changes in the areal extent of snow (Kulkarni et. al., 2006). Snow extent is estimated at an interval of 5-days and 10-days, depending upon availabilities of AWiFS data. In 5-daily product, snow extent is generated scene-wise. In this product, snow and cloud extents are given. Estimate of cloud is important because, at times, snow is covered by cloud and this may be classified as non-snow area, leading to erroneous conclusions. In 10-daily product, three scenes are analyzed, if available. For example, 10 March product data of 5, 10 and 15 March was used. If any pixel is identified as snow on any one date then this pixel will be classified as snow on final product. This provides snow cover at an interval of 10 days, an important requirement in hydrological applications. Therefore, this product is generated basin-wise. Since this product is using three scenes, probability becomes high that at least in one scene, pixel may be cloud-free and this helps in overcoming problem associated with snow under cloud cover. If three consecutive scenes are not available, then all available scenes in 10 days window was used in the analysis. Differentiation between water and snow is difficult using NDSI image. In addition, separation of snow and water pixels is also difficult based on reflectance due to mountain shadow. Therefore, in the present algorithm, water bodies are marked in pre-winter

season and are masked in the final products during winter. Flow diagram of the algorithm is given in Figure 2.

## **6. Results and discussions**

In this atlas, basin-wise snow cover statistics, maps, and seasonal depletion curves have been provided from October 2009 to June 2010. Snow ablation pattern varies from basin to basin, depending on area altitude distribution in the basins. Accumulation and ablation pattern in Dras, Shigo and Suru river sub-basin and Zaskar, Astor & Kisanganga river sub-basin is almost same and significant amount of melting was observed in early part of winter. From February to mid of April almost entire basin is covered by snow and ablation starts from the end of April. In case of Jhelum sub-basin continuous accumulation and ablation was observed throughout the season.

## **Acknowledgements**

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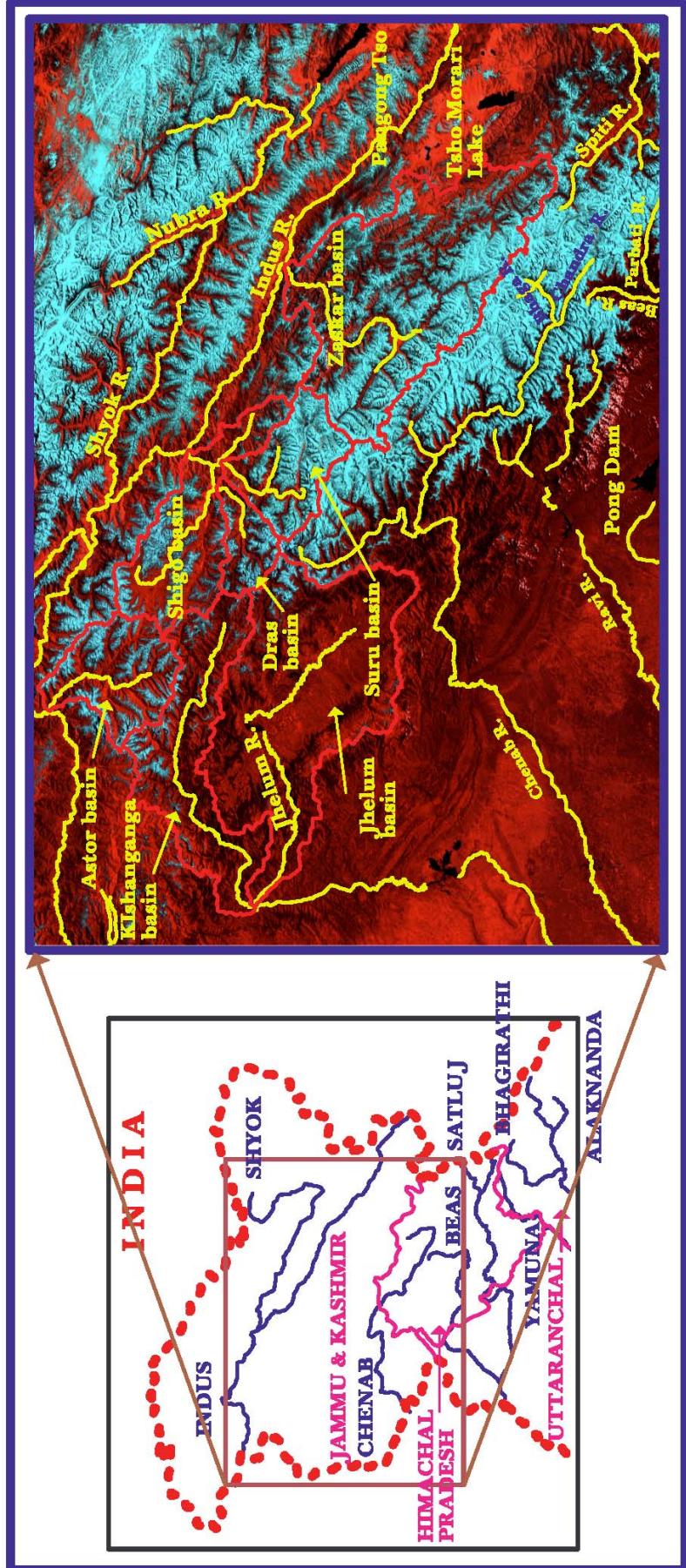
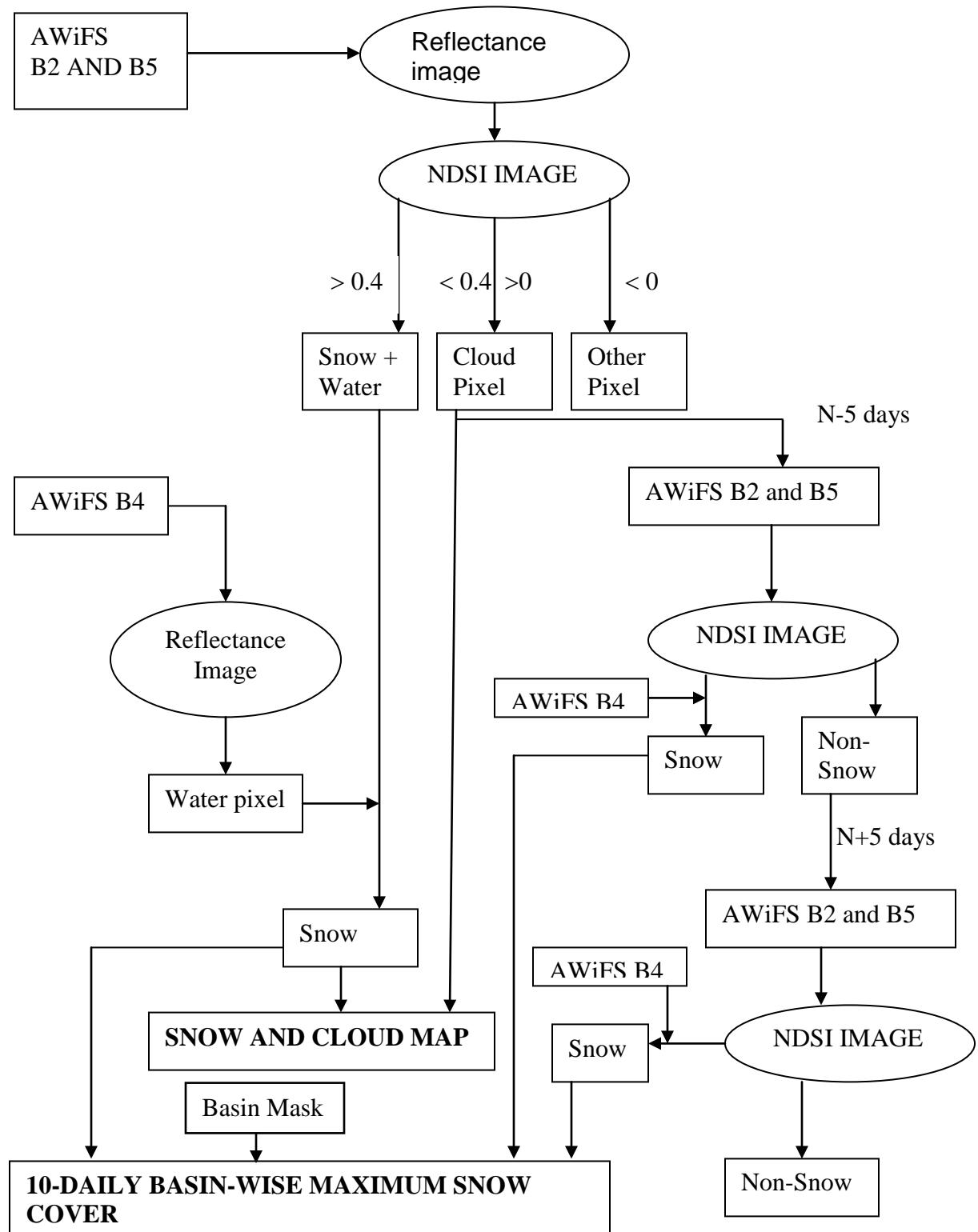


Figure 1: Location map of Jhelum, Kisan ganga, Astor, Shigok, Dras, Suru and Zaskar sub-basins (Part of Indus basin)



**Figure 2: Algorithm for snow cover mapping using AWiFS data**

# *JHELUM BASIN*

### AREAL EXTENT OF SNOW (5 DAILY)

**BASIN NAME: JHELUM**

**BASIN AREA:14472 sq km**

S No	Date	Snow cover (sq km)	Snow cover (%)	S No	Date	Snow cover (sq km)	Snow cover (%)
<b>October 2009</b>							
1	03-Oct-09	35	0	5	17-Oct-09	1008	7
2	07-Oct-09	97	1	6	27-Oct-09	518	4
3	08-Oct-09	1587	11	7	31-Oct-09	679	5
4	12-Oct-09	516	4				
<b>November 2009</b>							
1	01-Nov-09	495	3	5	20-Nov-09	4232	29
2	06-Nov-09	332	2	6	25-Nov-09	3058	21
3	10-Nov-09	5261	36	7	30-Nov-09	2690	19
4	15-Nov-09	3516	24				
<b>December 2009</b>							
1	04-Dec-09	3337	23	4	19-Dec-09	5298	37
2	14-Dec-09	4841	33	5	23-Dec-09	5757	40
3	18-Dec-09	5969	41	6	28-Dec-09	5481	38
<b>January 2010</b>							
1	02-Jan-10	4644	32	4	21-Jan-10	3930	27
2	07-Jan-10	4959	34	5	26-Jan-10	4383	30
3	11-Jan-10	5034	35	6	31-Jan-10	5449	38
<b>February 2010</b>							
1	04-Feb-10	6497	45	3	10-Feb-10	11190	77
2	05-Feb-10	13746	95				
<b>MARCH 2010</b>							
1	05-Mar-10	4998	35	2	24-Mar-10	2611	18
<b>APRIL 2010</b>							
1	08-Apr-10	2891	20	2	27-Apr-10	2076	14
<b>MAY 2010</b>							
1	02-May-10	2248	16	4	26-May-10	2162	15
2	11-May-10	1894	13	5	31-May-10	2162	15
3	21-May-10	1924	13				
<b>JUNE 2010</b>							
1	05-Jun-10	1102	8	2	29-Jun-10	698	5

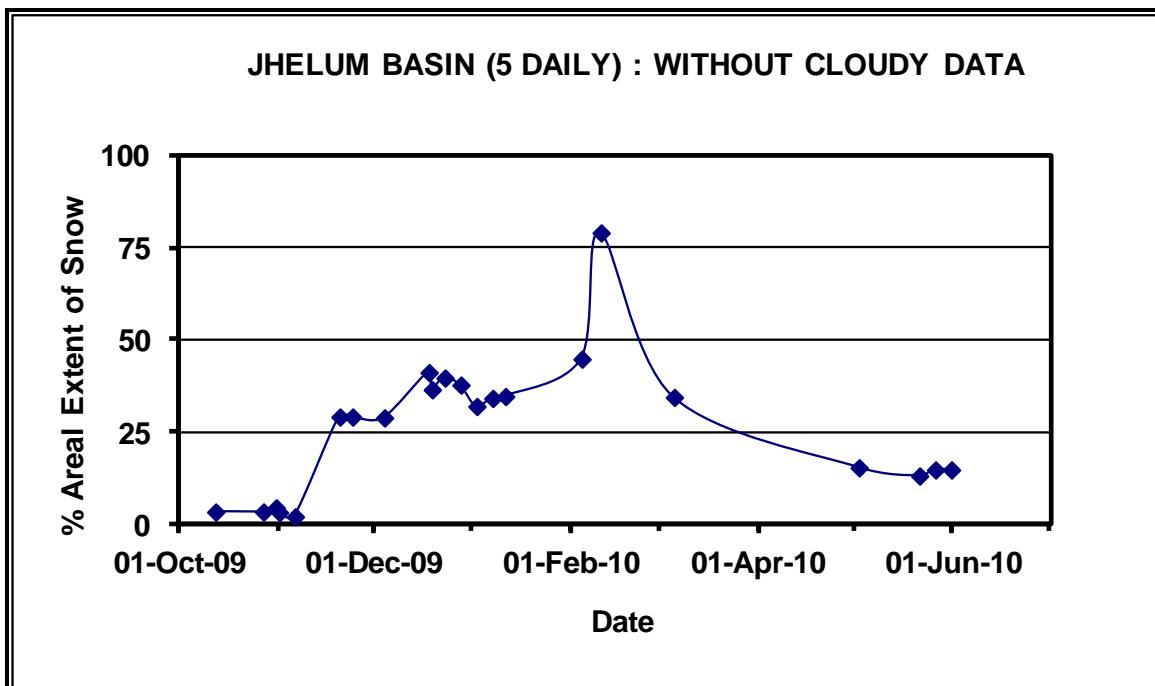
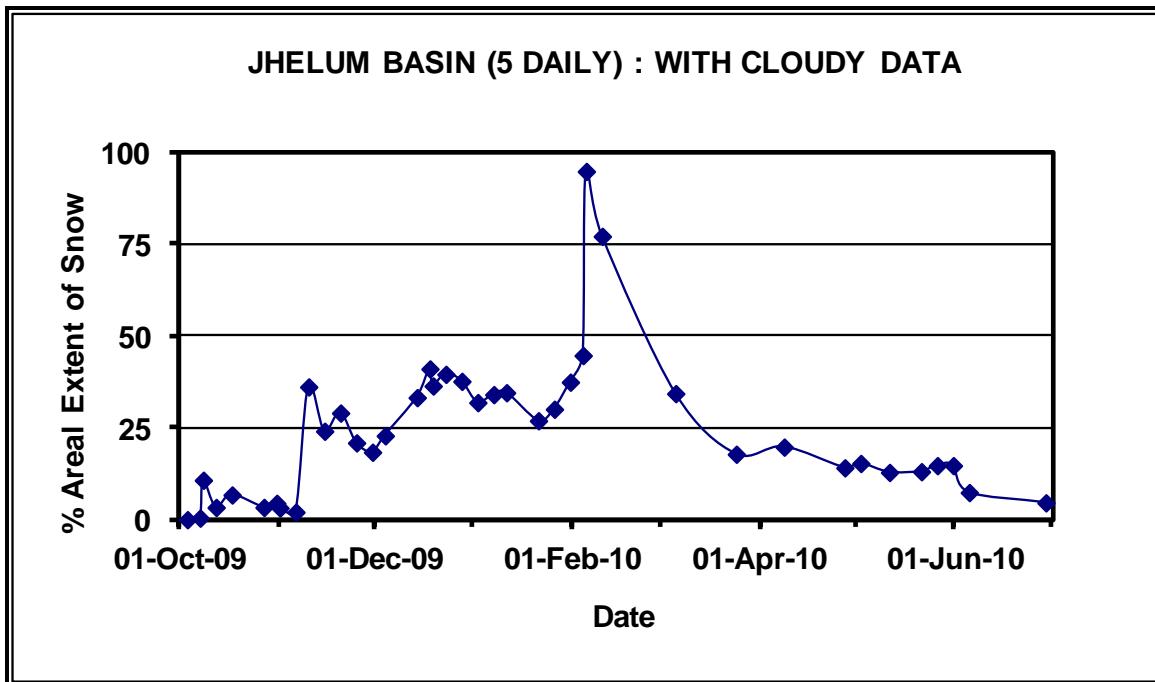
**AREAL EXTENT OF SNOW (10 DAILY)**

**BASIN NAME: JHELUM**

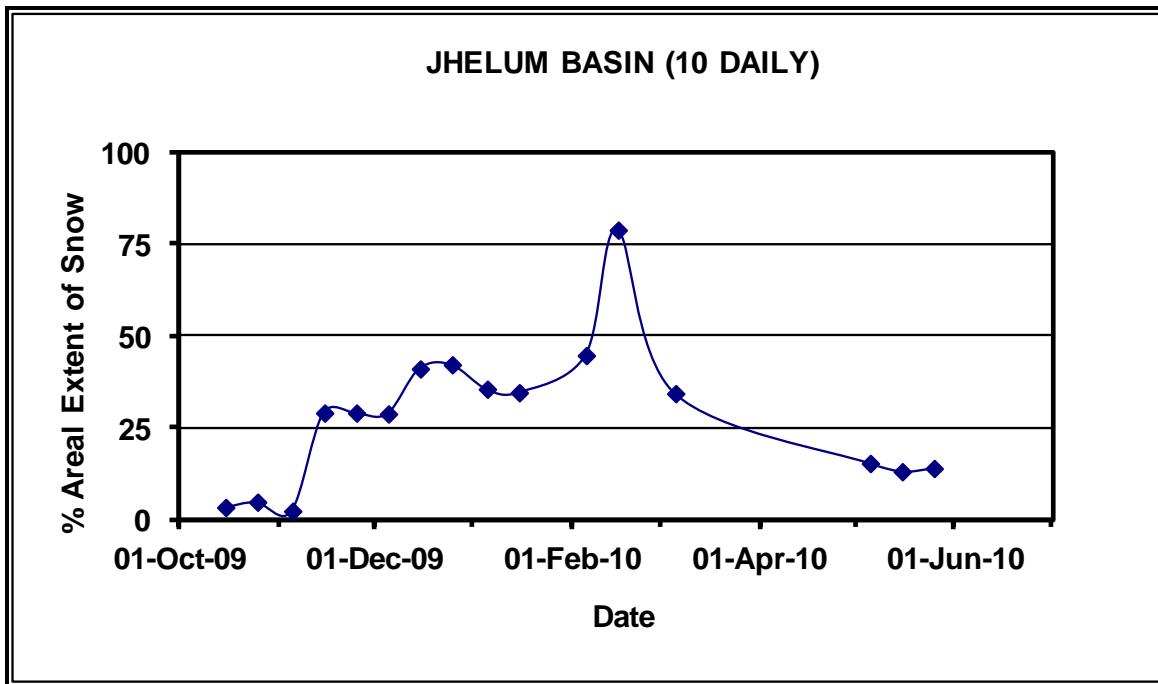
**BASIN AREA: 14472 sq km**

S No	Date	Snow cover (sq km)	Snow cover (%)	S No	Date	Snow cover (sq km)	Snow cover (%)
<b>October 2009</b>							
1	15-Oct-09	609	4	2	25-Oct-09	724	5
<b>November 2009</b>							
3	06-Nov-09	369	3	5	25-Nov-09	4232	29
4	15-Nov-09	4232	29				
<b>December 2009</b>							
6	5-Dec-09	4232	29	8	23-Dec-09	6132	42
7	15-Dec-09	5969	41				
<b>January 2010</b>							
9	02-Jan-10	5172	36	10	11-Jan-10	5034	35
<b>February 2010</b>							
11	04-Feb-10	6497	45	12	15-Feb-10	11433	79
<b>March 2010</b>							
13	05-March-10	5065	35				
<b>May 2010</b>							
14	5-May-10	2316	16	16	25-May-10	2050	14
15	15-May-10	1881	13				

### Snow cover depletion curve



### Snow cover depletion curve



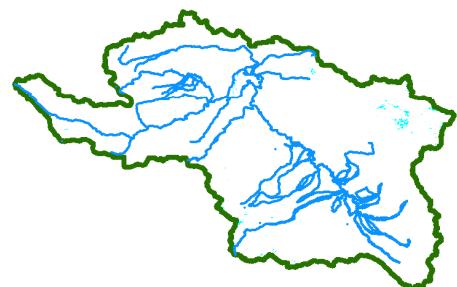
# *SNOW COVER MAP*

## SNOW COVER MAP:

## JHELUM BASIN

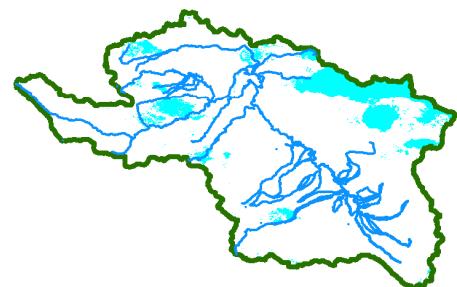


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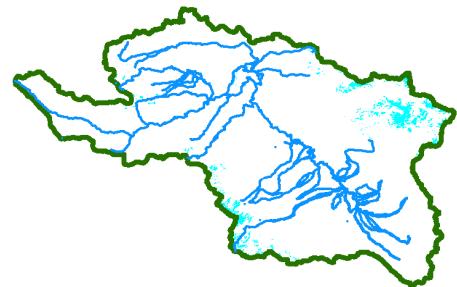
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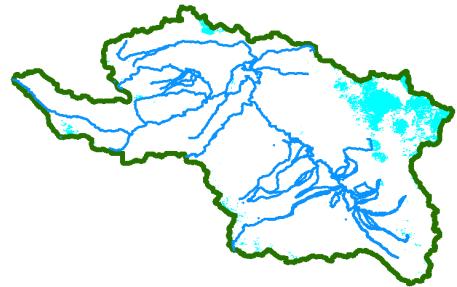
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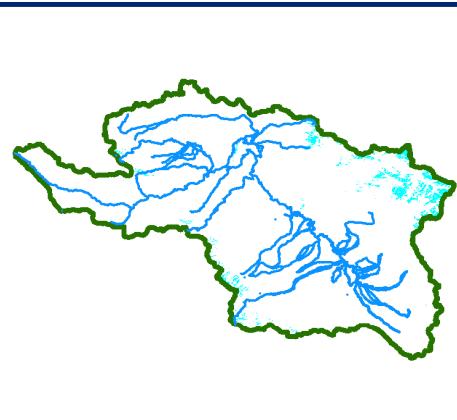


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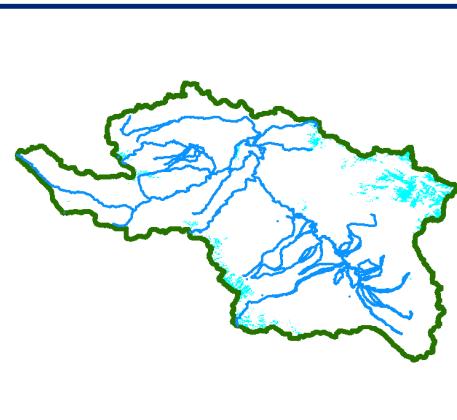
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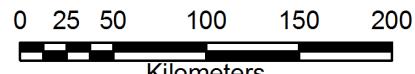
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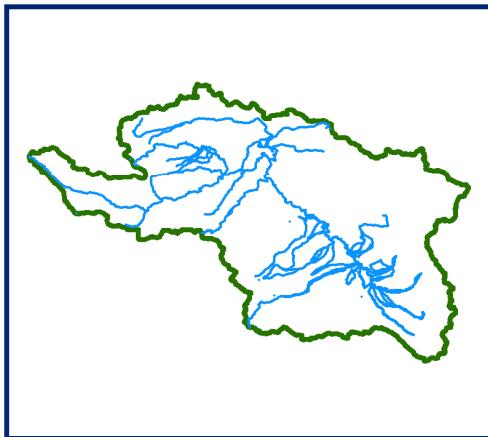
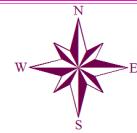
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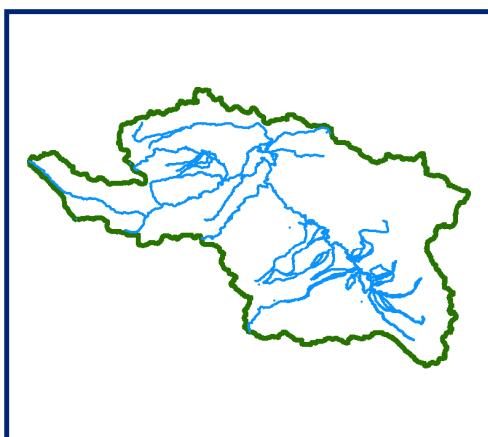
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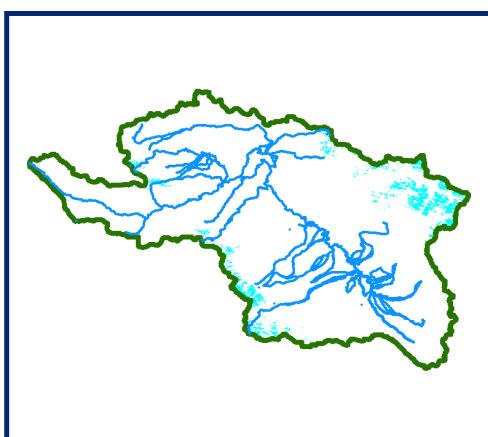
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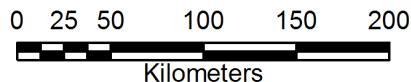
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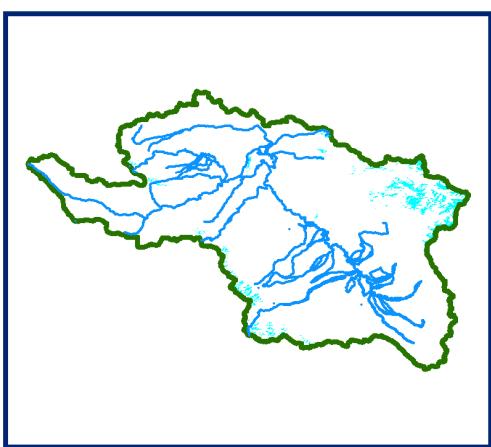


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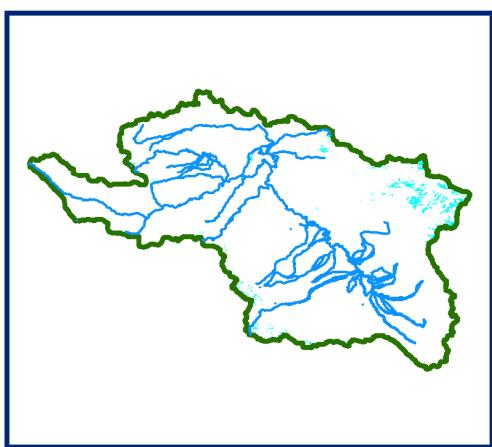


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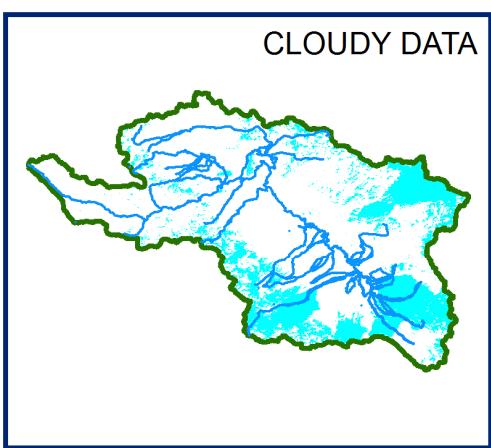
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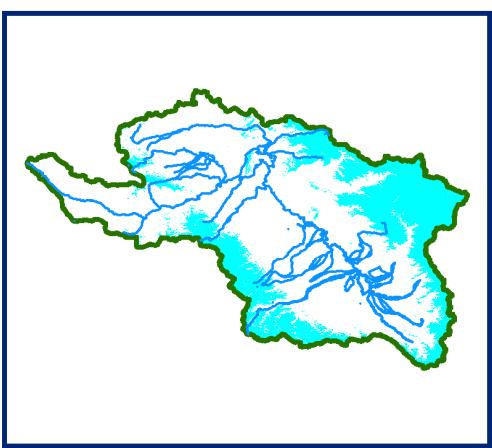
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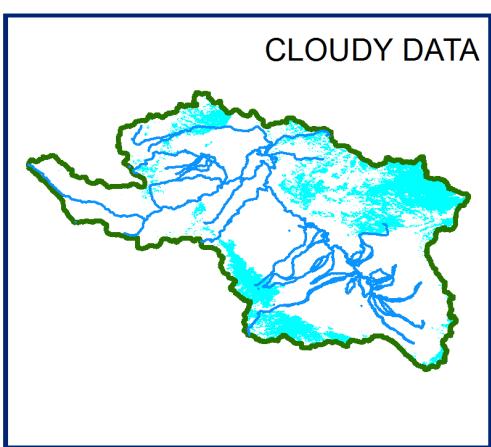
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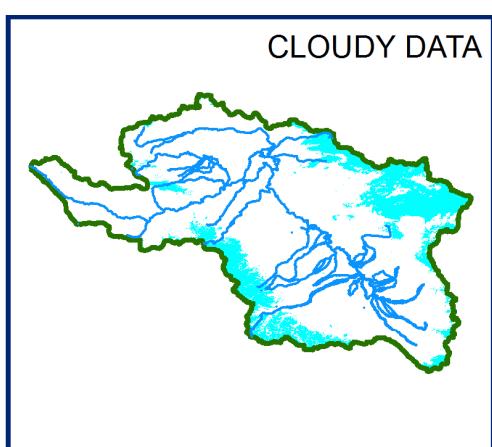
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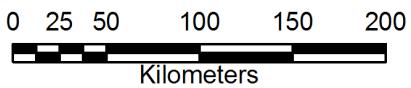
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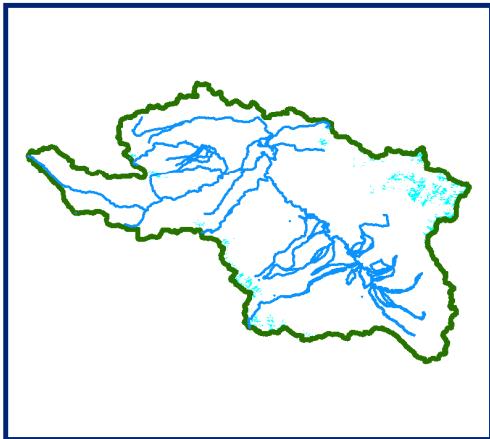
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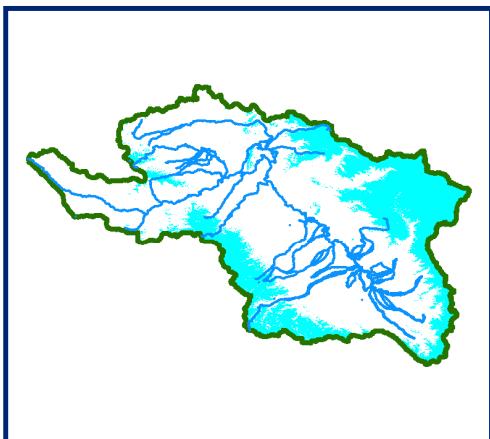
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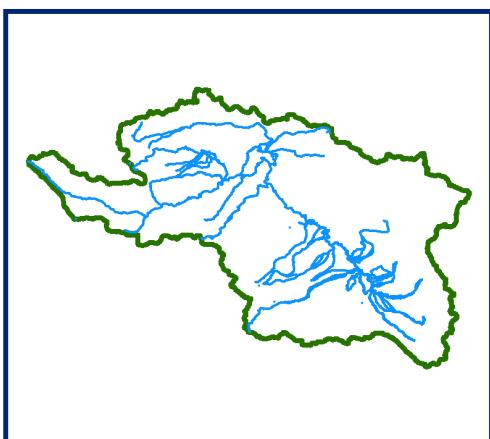
## 10 DAILY SNOW COVER MAP: JHELUM BASIN



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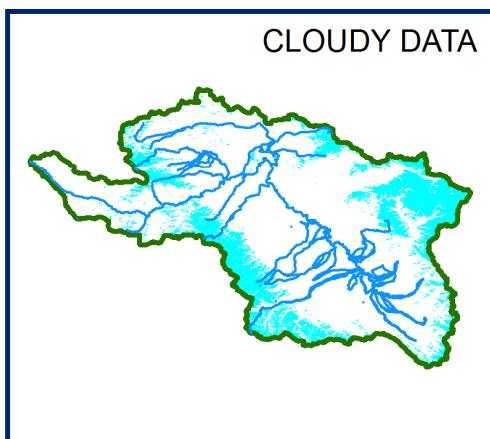


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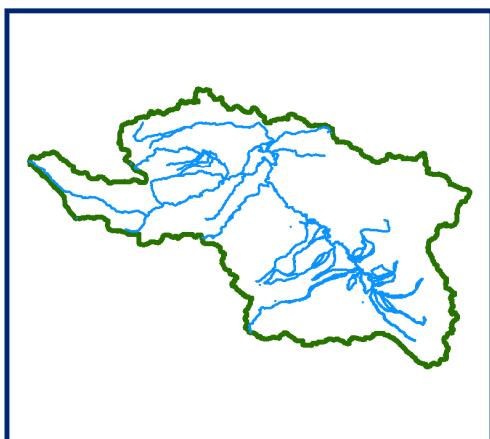


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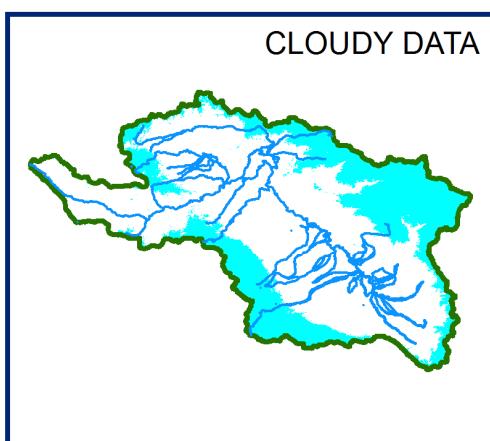
## JHELUM BASIN



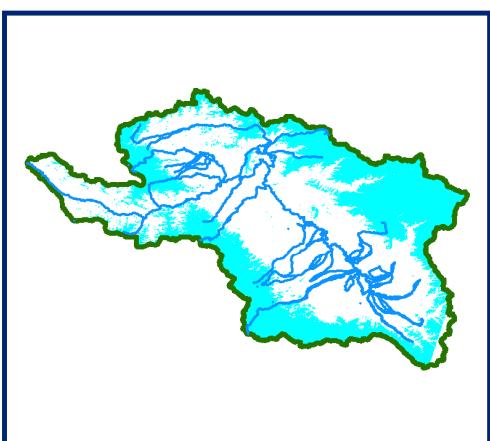
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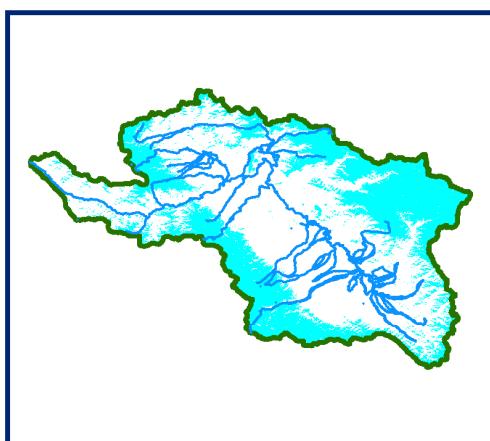
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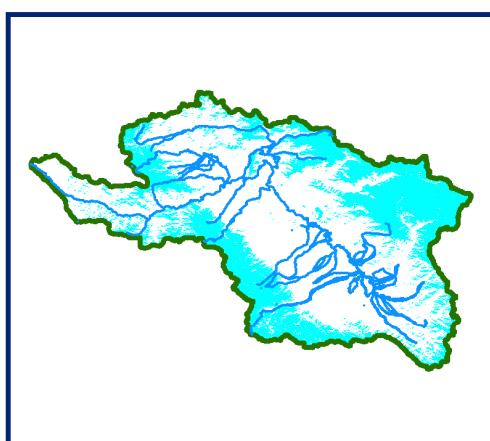
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23 DECEMBER 2009



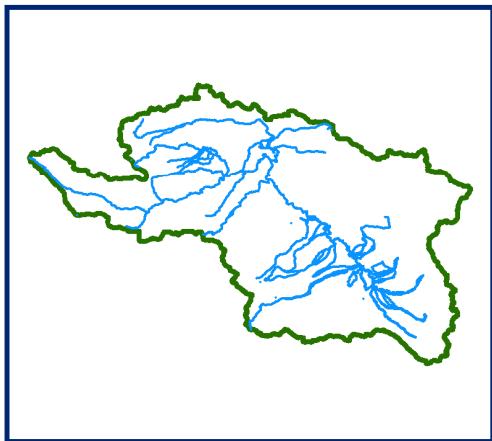
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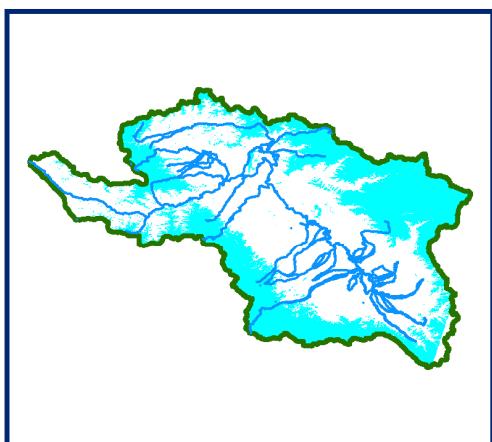
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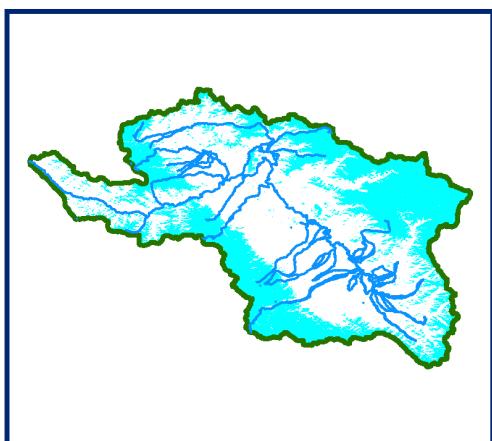
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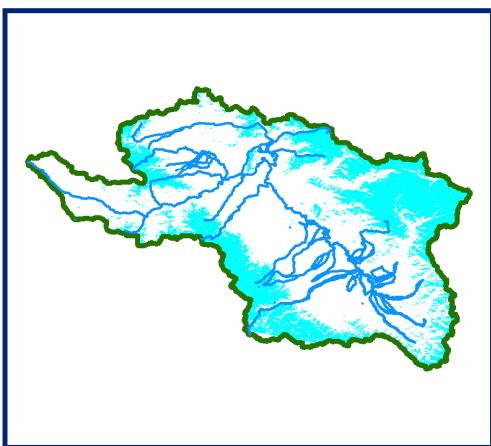


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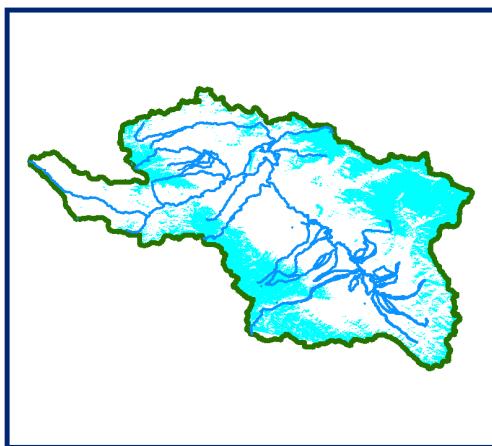


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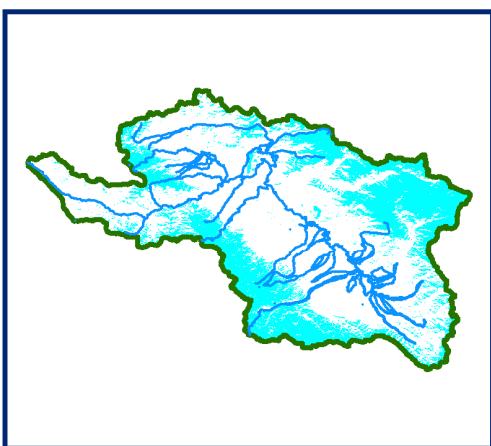
## JHELUM BASIN



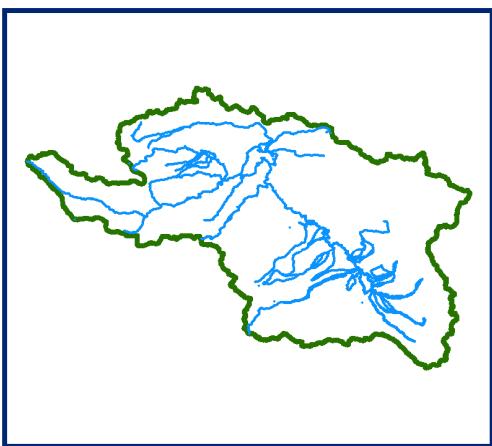
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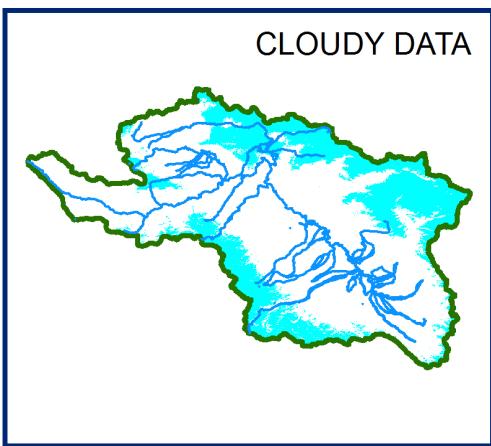
07 JANUARY 2010



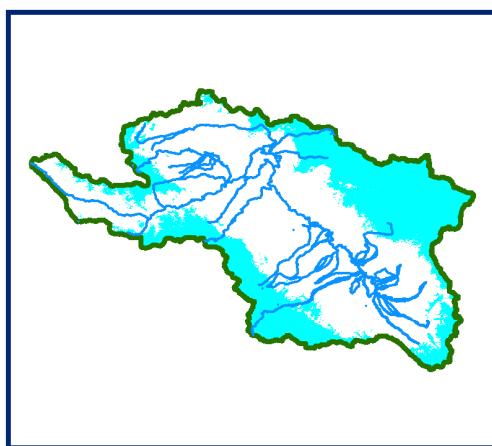
11 JANUARY 2010



CLOUDY DATA



26 JANUARY 2009



31 JANUARY 2009

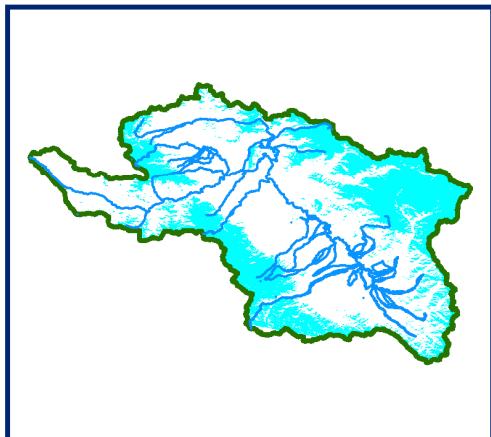


SNOW

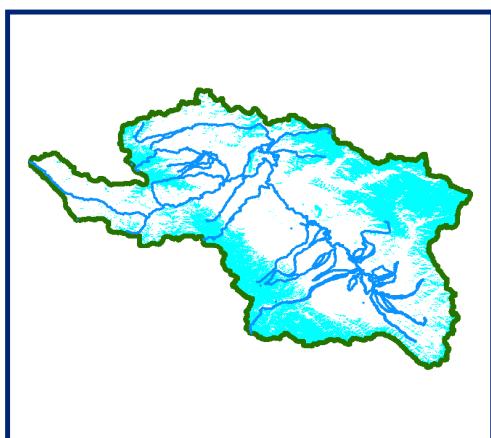
0 25 50 100 150 200

Kilometers

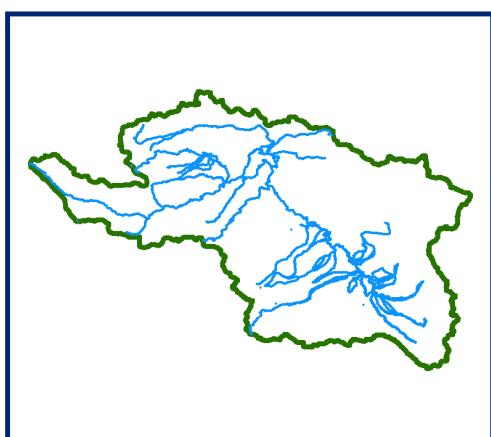
## 10 DAILY SNOW COVER MAP: JHELUM BASIN



DATA USED  
**02 JANUARY 2010**



DATA USED  
**02 JANUARY 2010**  
**11 JANUARY 2010**



**DATA NOT AVAILABLE**



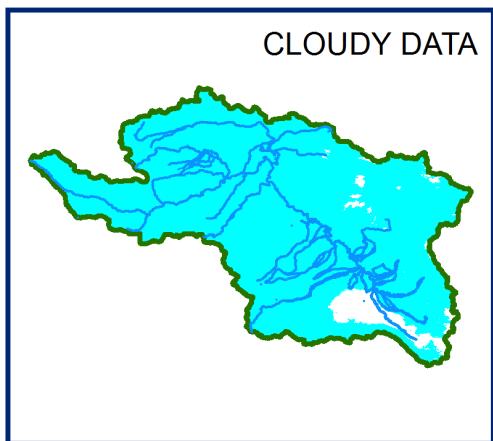
SNOW

0 25 50 100 150 200

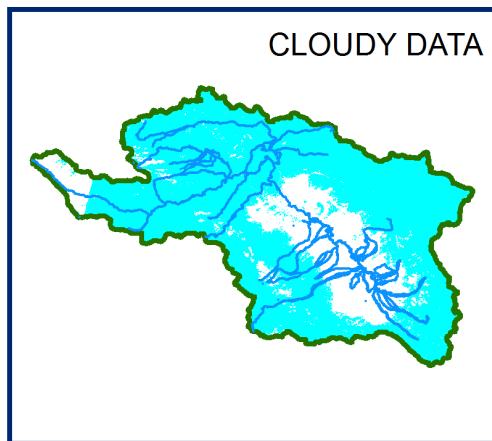
Kilometers

## SNOW COVER MAP:

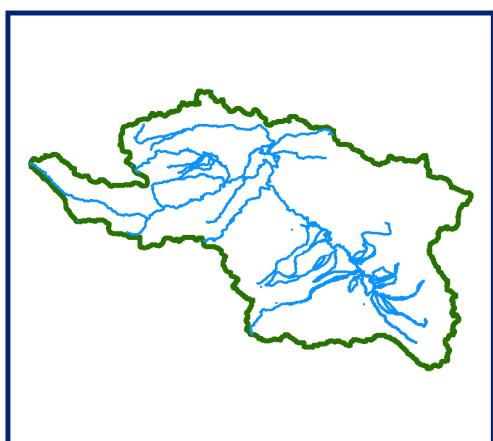
## JHELUM BASIN



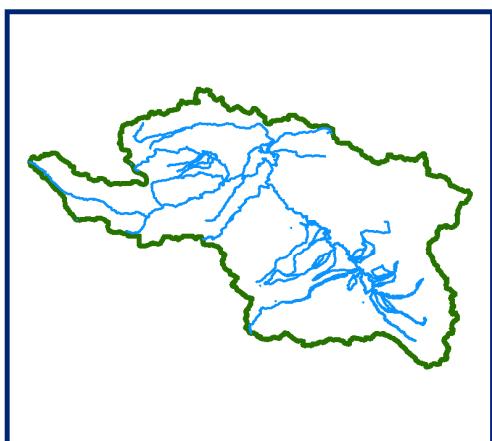
05 FEBRUARY 2010



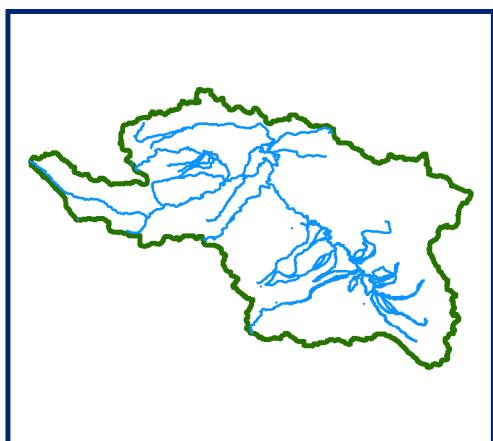
10 FEBRUARY 2010



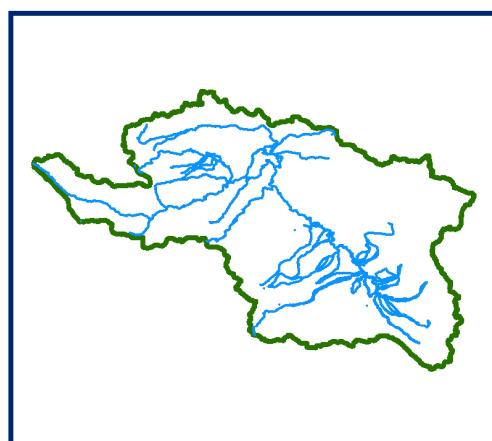
DATA NOT AVAILABLE



DATA NOT AVAILABLE



DATA NOT AVAILABLE



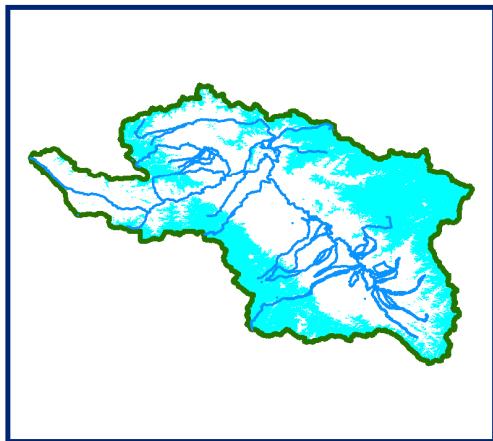
DATA NOT AVAILABLE



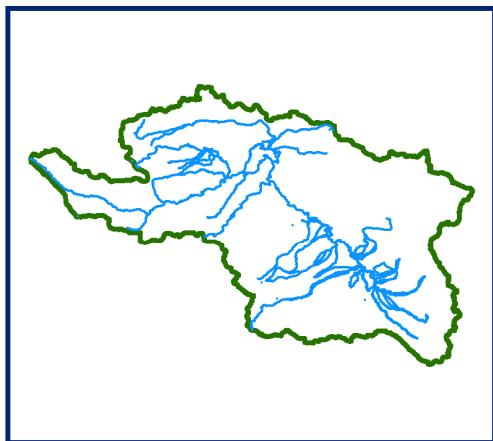
SNOW



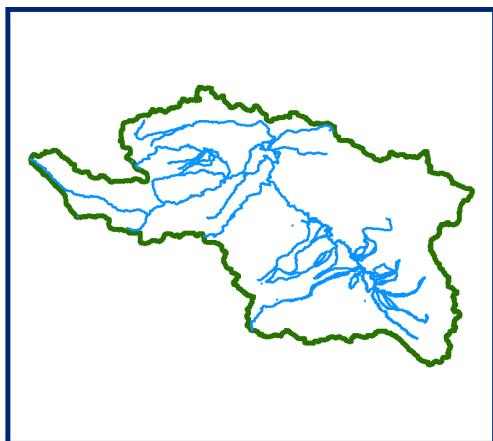
## 10 DAILY SNOW COVER MAP: JHELUM BASIN



DATA USED  
**04 FEBRUARY 2010**  
**10 FEBRUARY 2010**



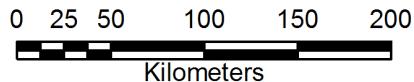
**DATA NOT AVAILABLE**



**DATA NOT AVAILABLE**



SNOW

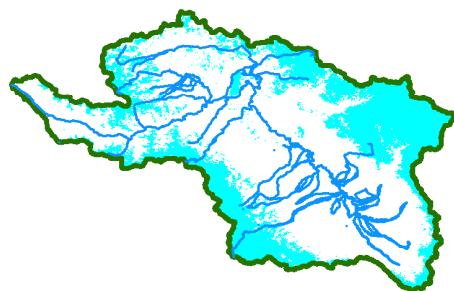


## SNOW COVER MAP:

## JHELUM BASIN



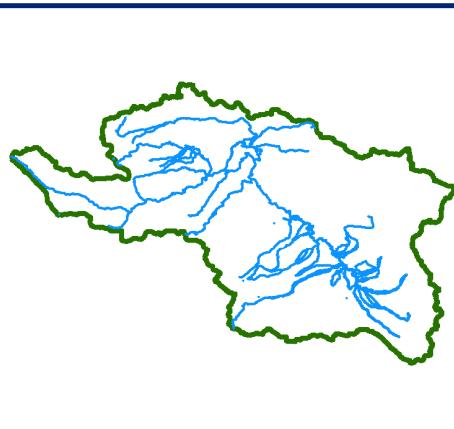
CLOUDY DATA



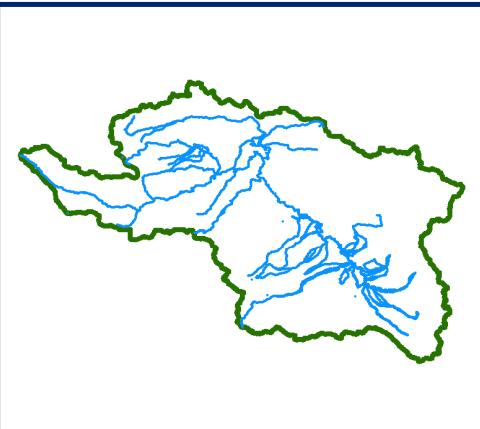
05 MARCH 2010

DATA NOT AVAILABLE

DATA NOT AVAILABLE

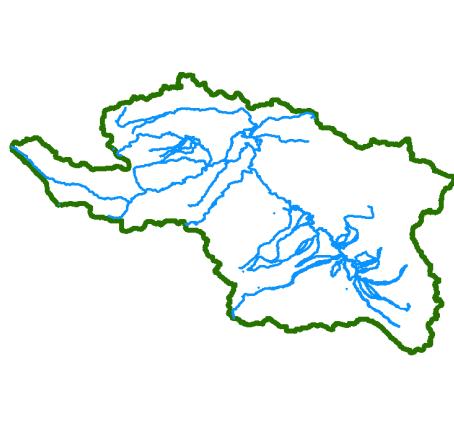


DATA NOT AVAILABLE



DATA NOT AVAILABLE

CLOUDY DATA

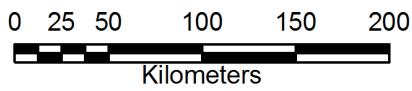


DATA NOT AVAILABLE

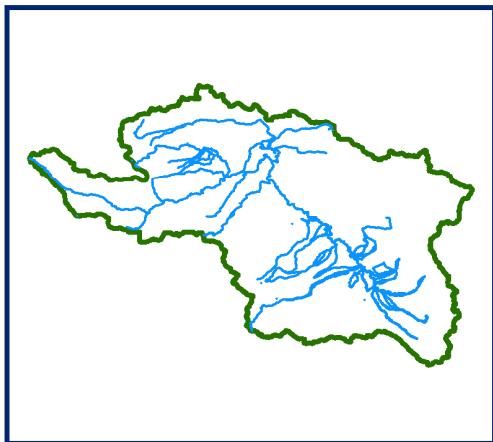
24 MARCH 2010



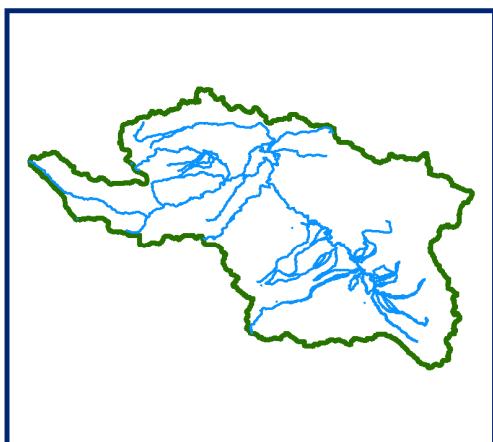
SNOW



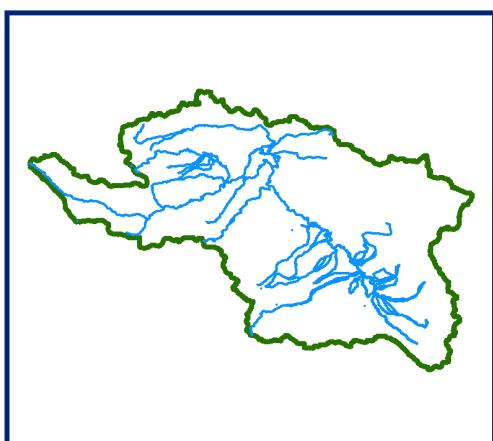
## 10 DAILY SNOW COVER MAP: JHELUM BASIN



DATA NOT AVAILABLE



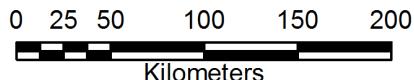
DATA NOT AVAILABLE



DATA NOT AVAILABLE

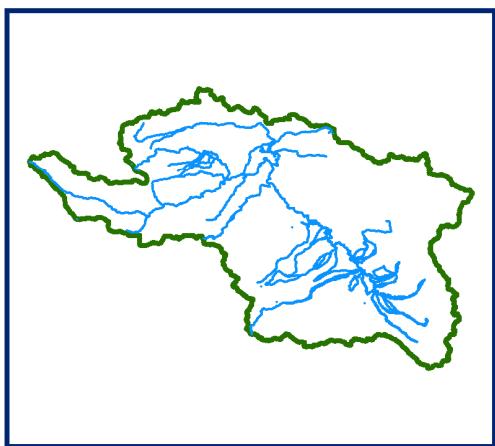


SNOW

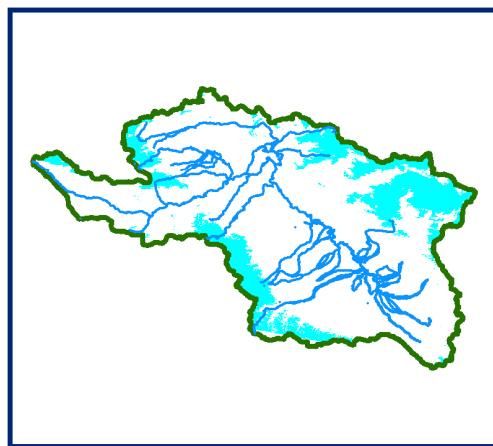


## SNOW COVER MAP:

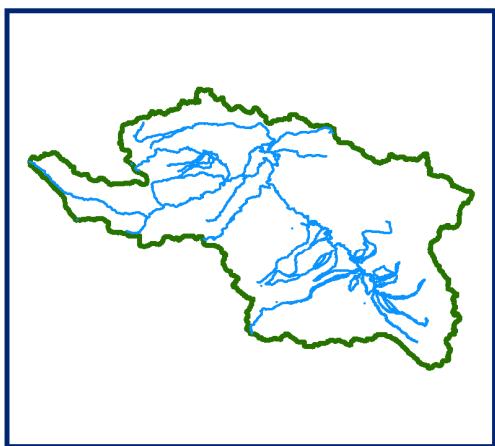
## JHELUM BASIN



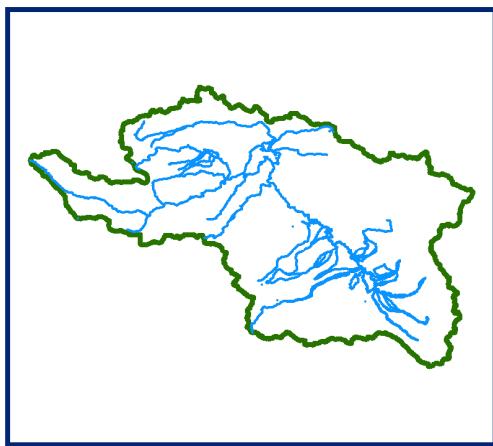
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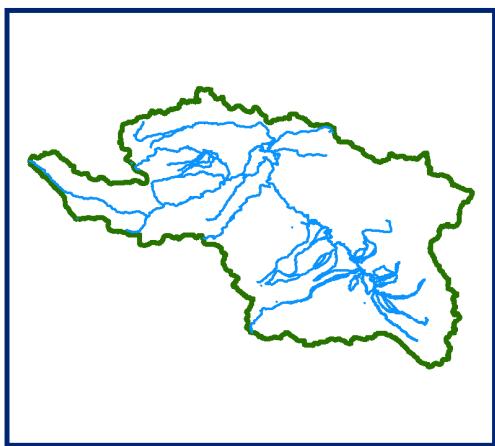
08 APRIL 2010



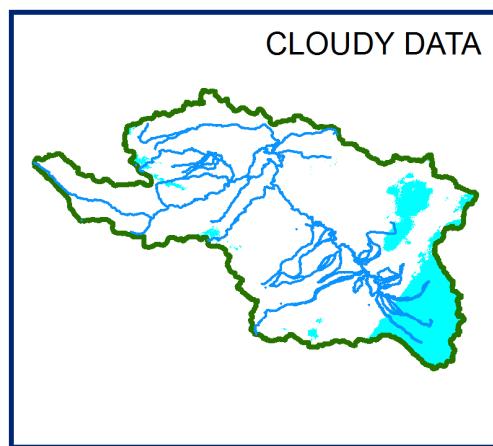
DATA NOT AVAILABLE



DATA NOT AVAILABLE



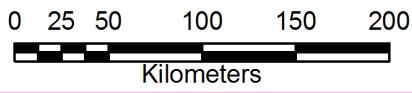
DATA NOT AVAILABLE



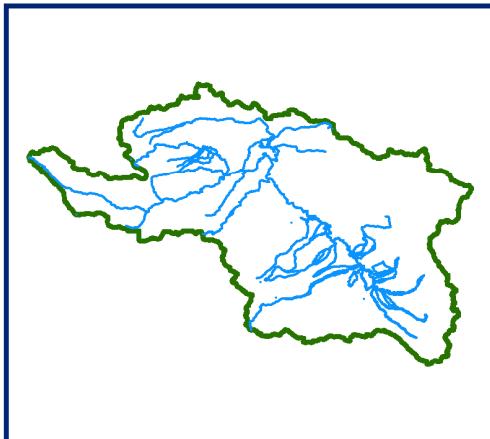
CLOUDY DATA  
27 APRIL 2010



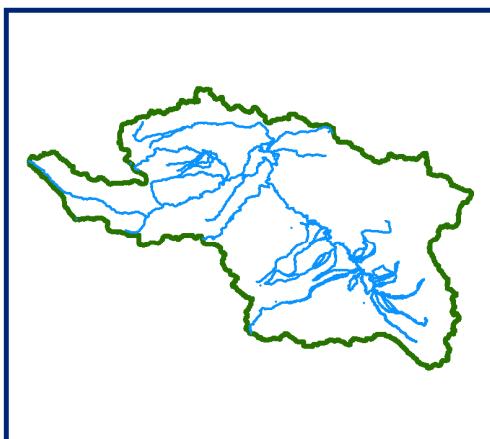
SNOW



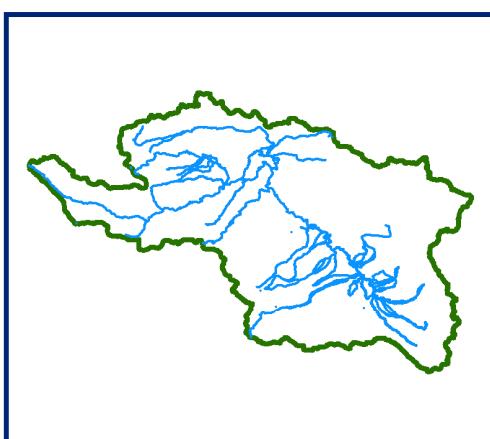
## 10 DAILY SNOW COVER MAP: JHELUM BASIN



DATA NOT AVAILABLE



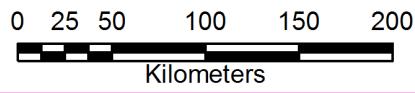
DATA NOT AVAILABLE



DATA NOT AVAILABLE

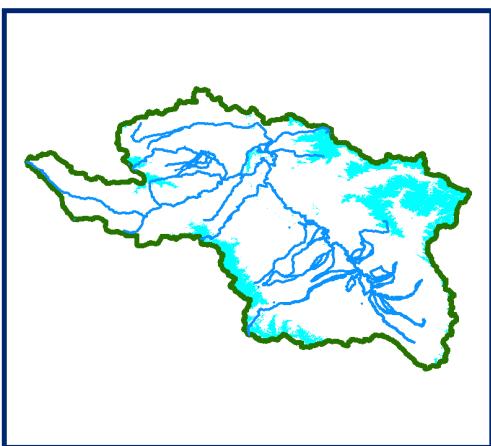


SNOW

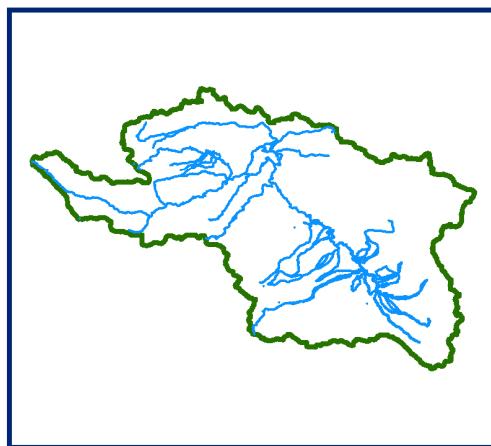


## SNOW COVER MAP:

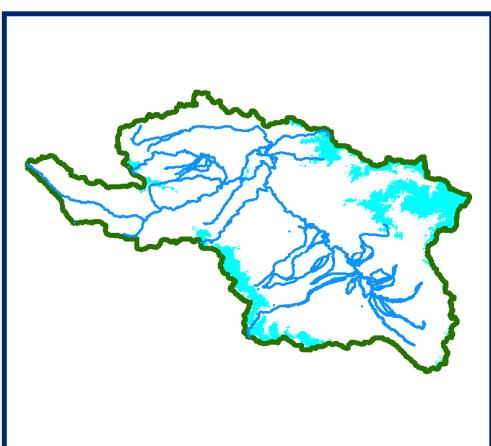
## JHELUM BASIN



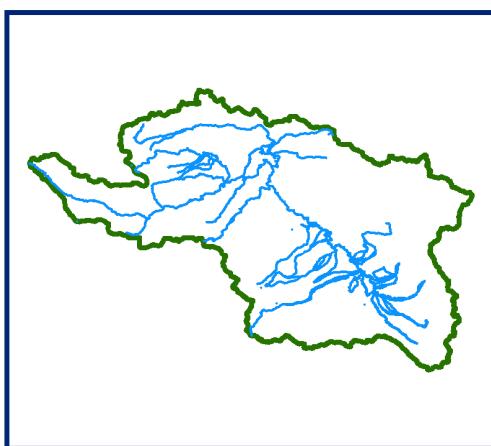
02 MAY 2010



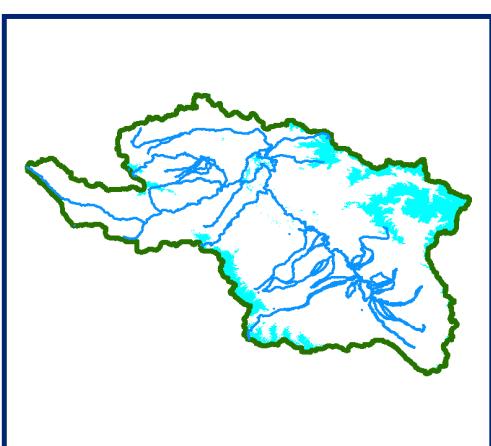
DATA NOT AVAILABLE



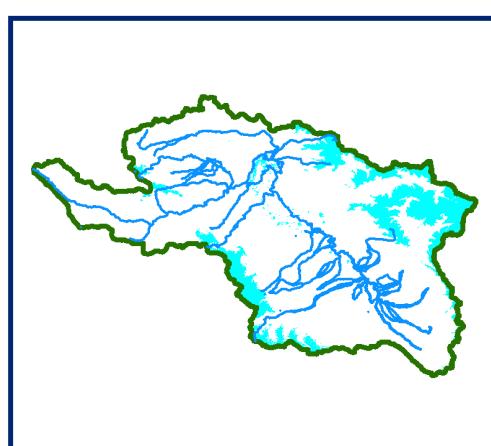
11 MAY 2010



DATA NOT AVAILABLE



21 MAY 2010



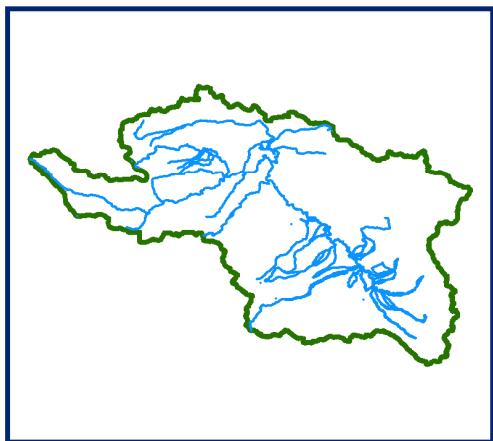
26 MAY 2010



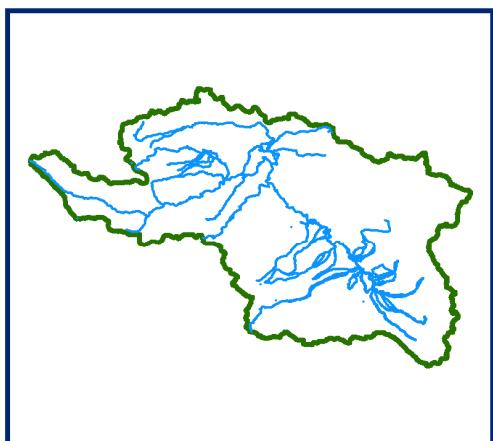
SNOW

0 25 50 100 150 200  
Kilometers

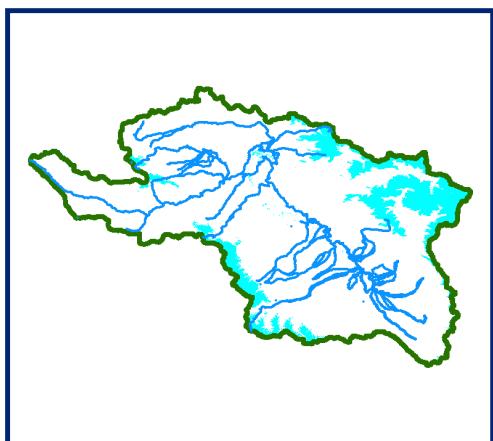
## 10 DAILY SNOW COVER MAP: JHELUM BASIN



DATA NOT AVAILABLE



DATA NOT AVAILABLE



DATA USED  
21 MAY 2010



SNOW

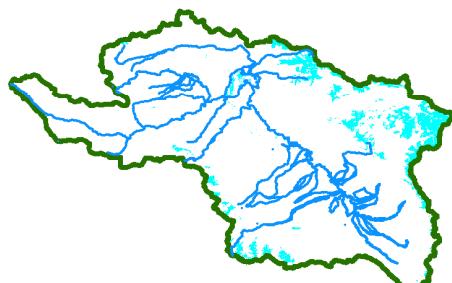


## SNOW COVER MAP:

## JHELUM BASIN

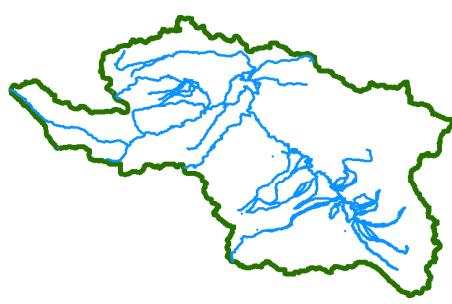


CLOUDY DATA

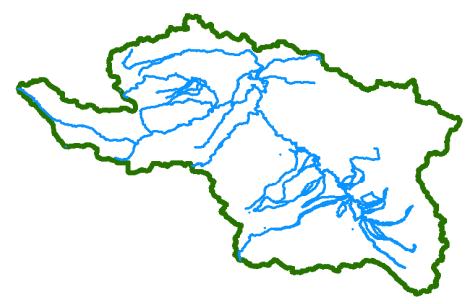


05 JUNE 2010

DATA NOT AVAILABLE

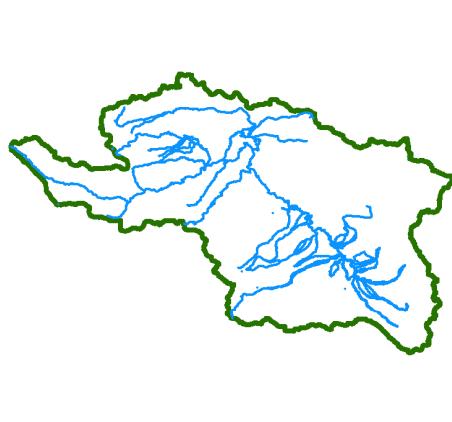


DATA NOT AVAILABLE



DATA NOT AVAILABLE

CLOUDY DATA



DATA NOT AVAILABLE

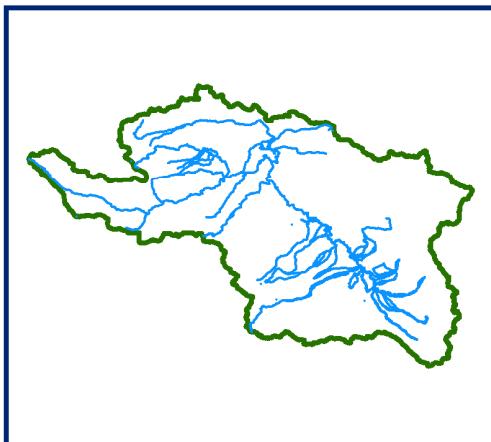
29 JUNE 2010



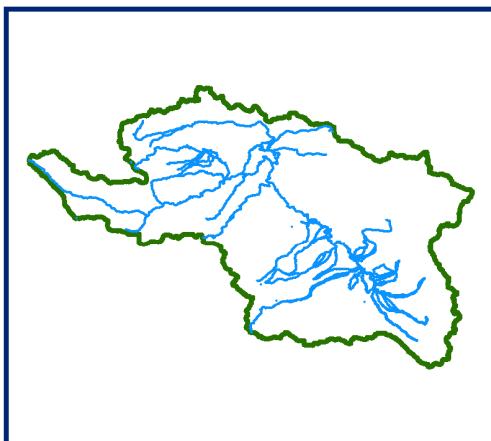
SNOW



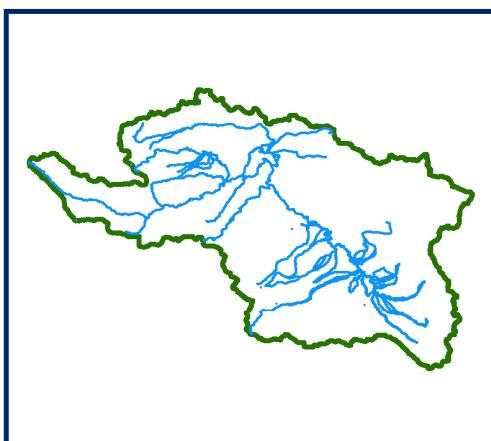
## 10 DAILY SNOW COVER MAP: JHELUM BASIN



DATA NOT AVAILABLE



DATA NOT AVAILABLE



DATA NOT AVAILABLE



SNOW



### AREAL EXTENT OF SNOW (5 DAILY)

**BASIN NAME: KISANGANGA**

**BASIN AREA: 7451 sq km**

S No	Date	Snow cover (sq km)	Snow cover (%)	S No	Date	Snow cover (sq km)	Snow cover (%)
<b>October 2009</b>							
1	03-Oct-09	81	1	5	17-Oct-09	1727	23
2	08-Oct-09	2278	31	6	27-Oct-09	765	10
3	07-Oct-09	613	8	7	31-Oct-09	2171	29
4	12-Oct-09	724	10				
<b>November 2009</b>							
1	01-Nov-09	1571	21	5	20-Nov-09	4179	56
2	06-Nov-09	965	13	6	24-Nov-09	4026	54
3	10-Nov-09	5924	80	7	25-Nov-09	4249	57
4	15-Nov-09	3051	41				
<b>December 2009</b>							
1	04-Dec-09	4096	55	4	19-Dec-09	6186	83
2	14-Dec-09	5535	74	5	23-Dec-09	6375	86
3	18-Dec-09	6490	87	6	28-Dec-09	5979	80
<b>January 2010</b>							
1	02-Jan-10	5686	76	4	21-Jan-10	5163	69
2	07-Jan-10	5468	73	5	26-Jan-10	5606	75
3	11-Jan-10	5542	74	6	31-Jan-10	6548	88
<b>February 2010</b>							
1	04-Feb-10	5883	79	2	05-Feb-10	5819	78
<b>MARCH 2010</b>							
1	05-Mar-10	5763	77	3	24-Mar-10	3760	50
2	20-Mar-10	5762	77				
<b>APRIL 2010</b>							
1	08-Apr-10	5348	72	2	27-Apr-10	761	10
<b>MAY 2010</b>							
1	02-May-10	3545	48	4	26-May-10	2692	36
2	11-May-10	3049	41	5	31-May-10	2809	38
3	21-May-10	3070	41				
<b>JUNE 2010</b>							
1	05-Jun-10	2987	40	3	29-Jun-10	885	12
2	28-Jun-10	1062	14				

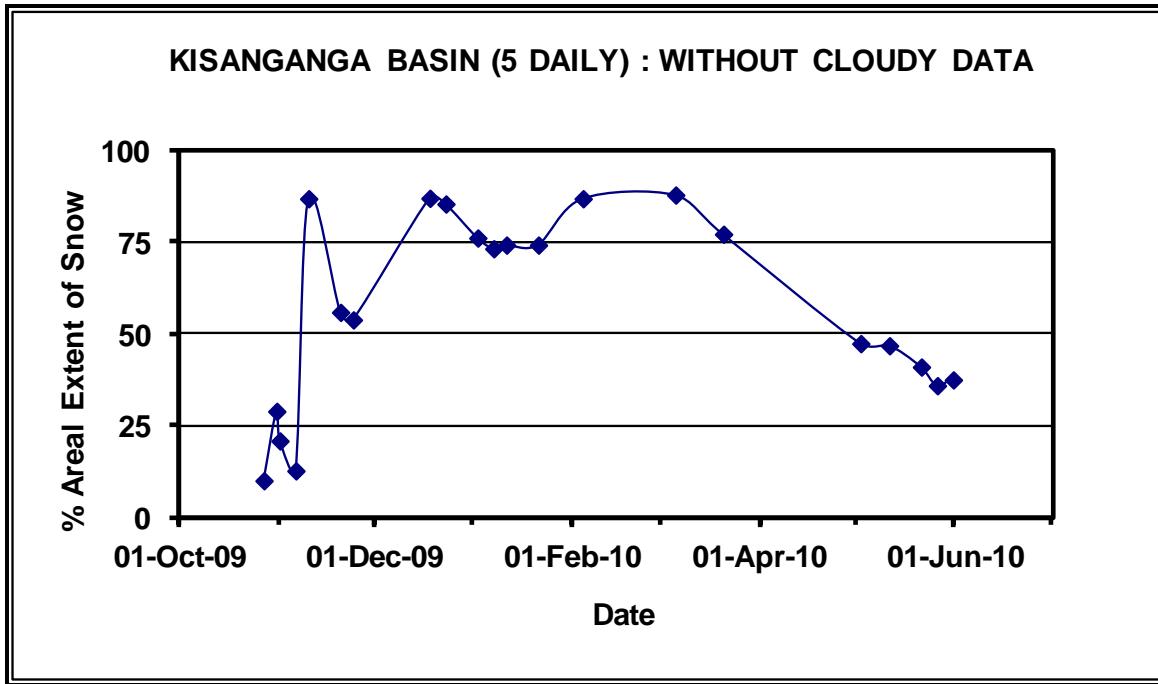
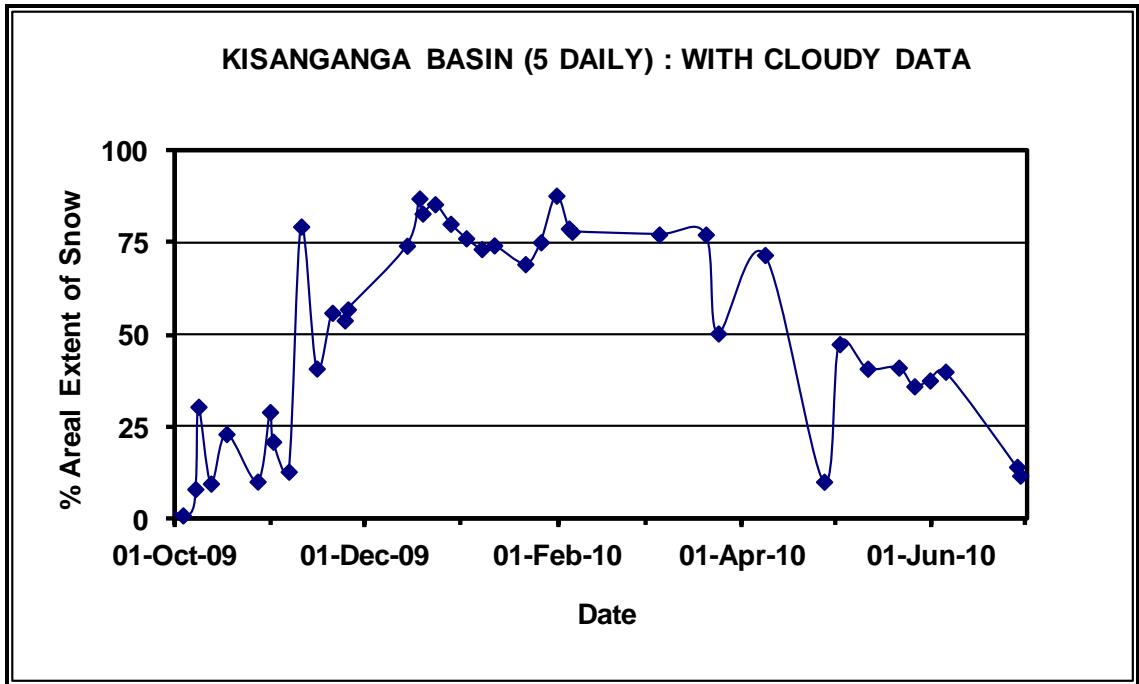
**AREAL EXTENT OF SNOW (10 DAILY)**

**BASIN NAME: KISANGANGA**

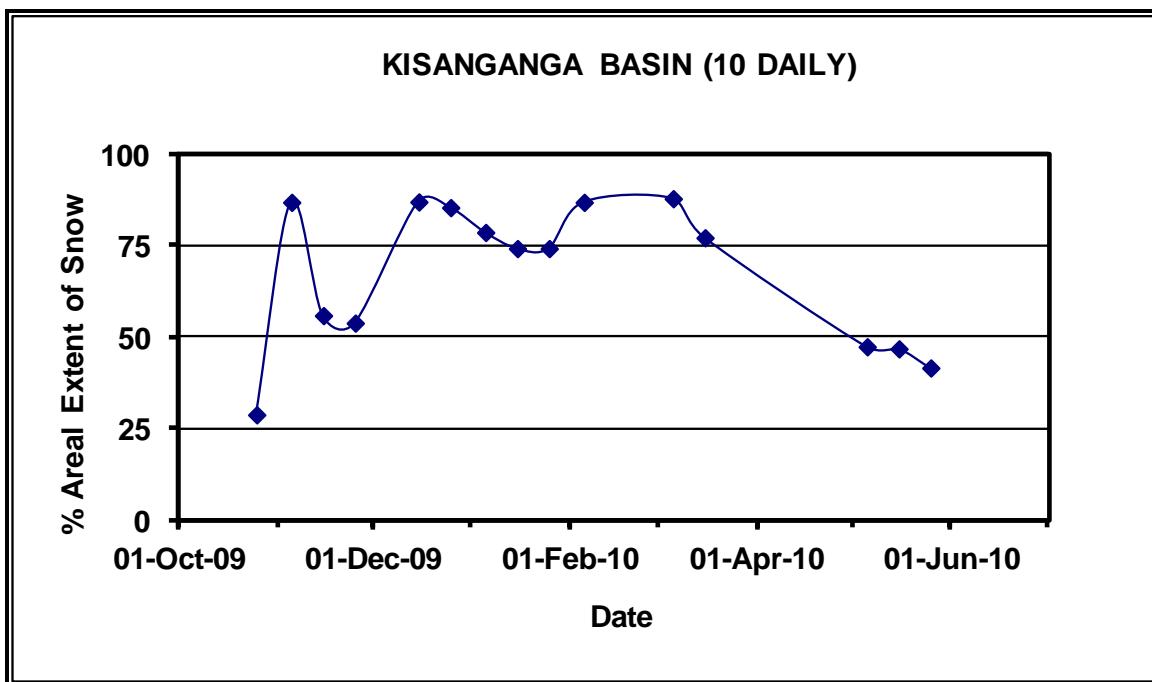
**BASIN AREA: 7451 sq km**

S No	Date	Snow cover (sq km)	Snow cover (%)	S No	Date	Snow cover (sq km)	Snow cover (%)
<b>October 2009</b>							
1	25-Oct-09	1863	29				
<b>November 2009</b>							
2	05-Nov-09	6482	87	4	25-Nov-09	4026	54
3	15-Nov-09	4179	56				
<b>December 2009</b>							
5	15-Dec-09	6482	87	6	25-Dec-09	6375	86
<b>January 2010</b>							
7	05-Jan-10	5870	79	8	15-Jan-10	5542	74
<b>February 2010</b>							
9	05-Feb-10		87				
<b>March 2010</b>							
10	5-Mar-10	6557	88	11	15-Mar-10	5737	77
<b>May 2010</b>							
12	05-May-10	3576	48	14	25-May-10	3129	42
13	15-May-10	3502	47				

### Snow cover depletion curve



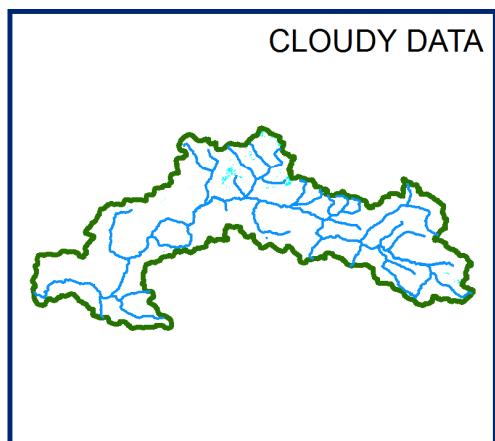
## Snow cover depletion curve



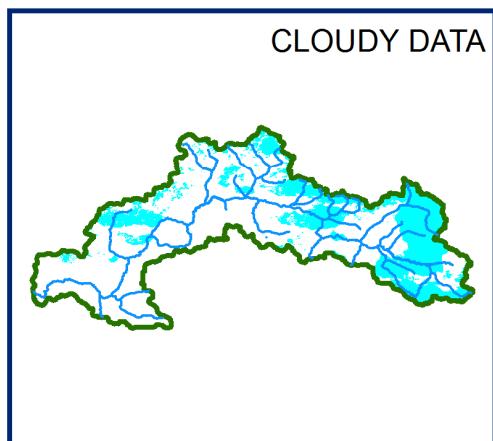
# *SNOW COVER MAP*

**SNOW COVER MAP:**

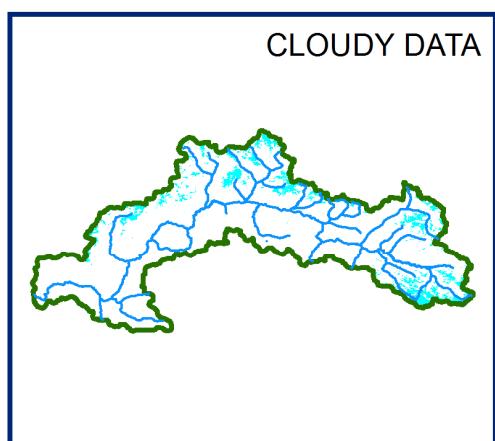
**KISANGANGA BASIN**



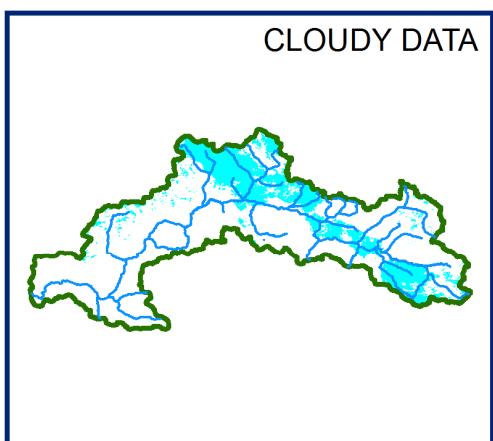
03 OCTOBER 2009



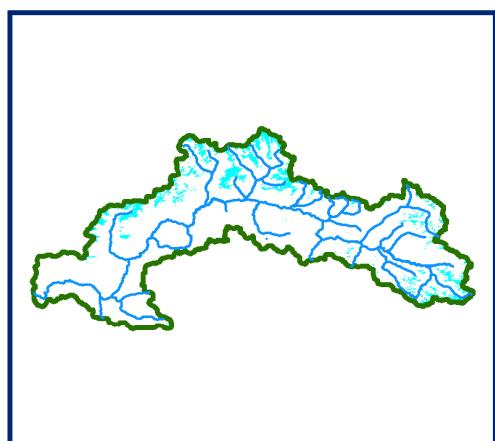
08 OCTOBER 2009



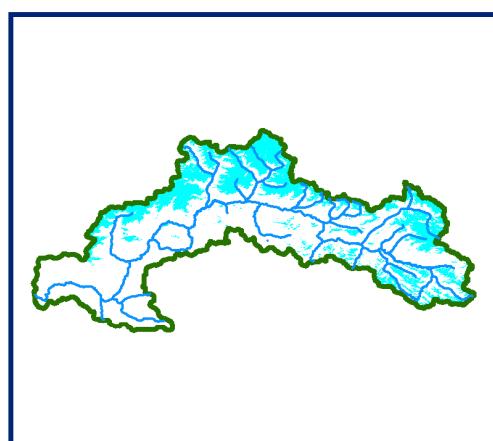
12 OCTOBER 2009



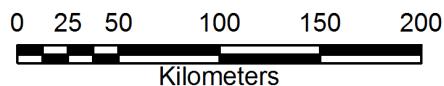
17 OCTOBER 2009



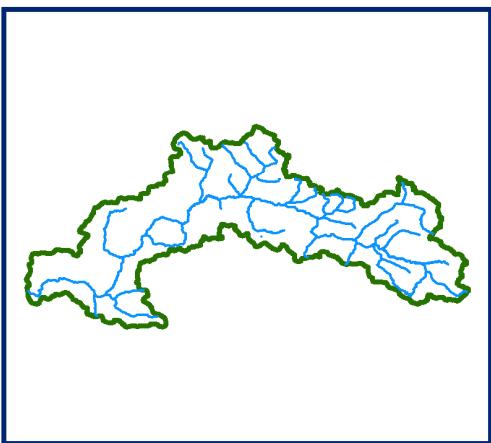
27 OCTOBER 2009



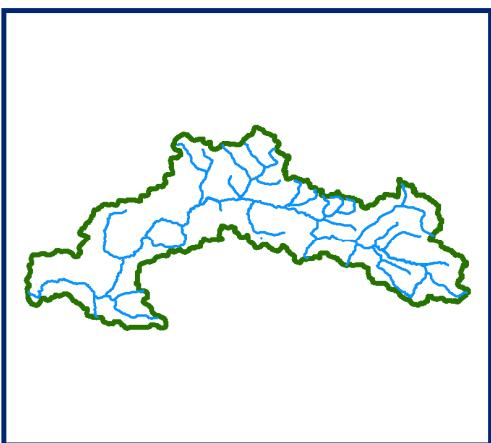
31 OCTOBER 2009



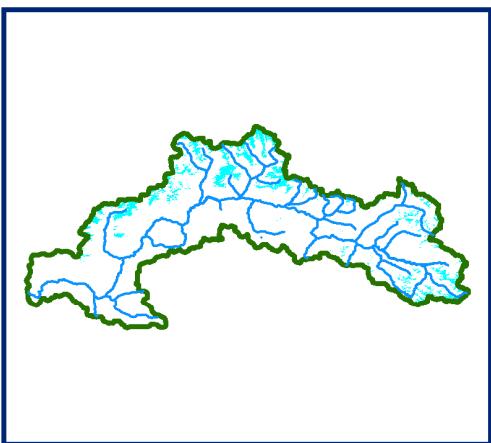
## 10 DAILY SNOW COVER MAP: KISANGANGA BASIN



DATA NOT AVAILABLE



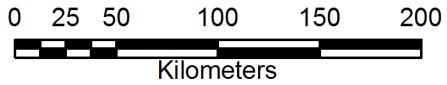
DATA NOT AVAILABLE



DATA USED  
27 OCTOBER 2009

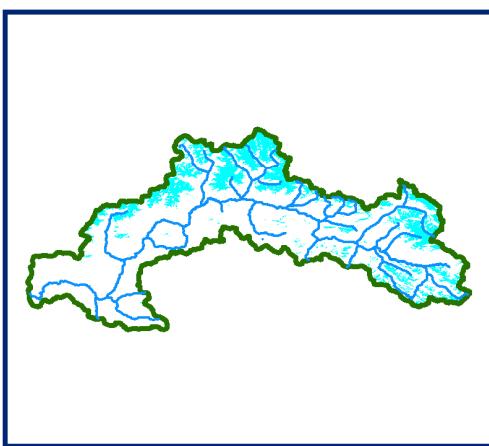


SNOW

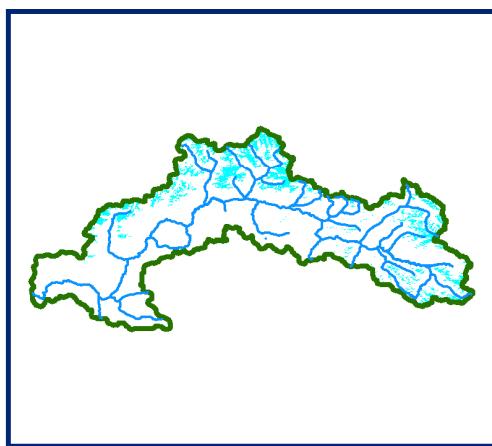


## SNOW COVER MAP:

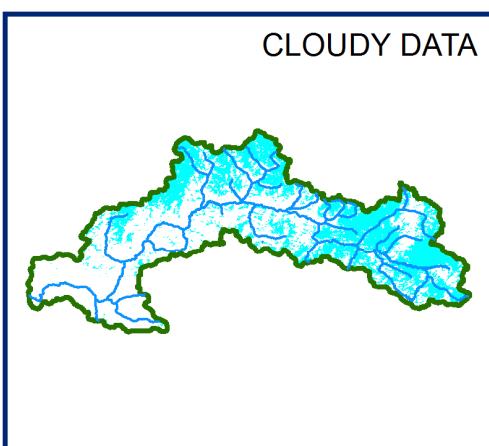
## KISANGANGA BASIN



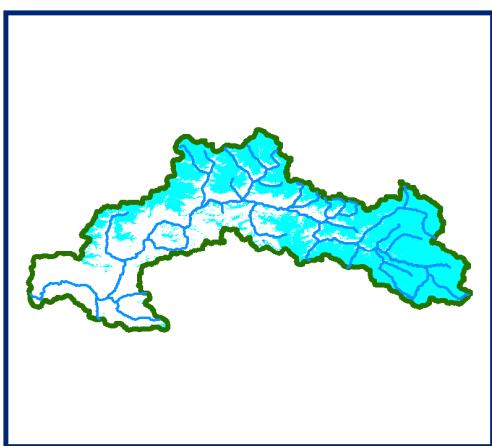
01 NOVEMBER 2009



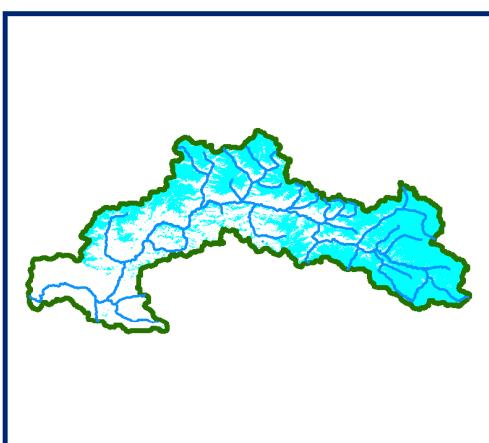
06 NOVEMBER 2009



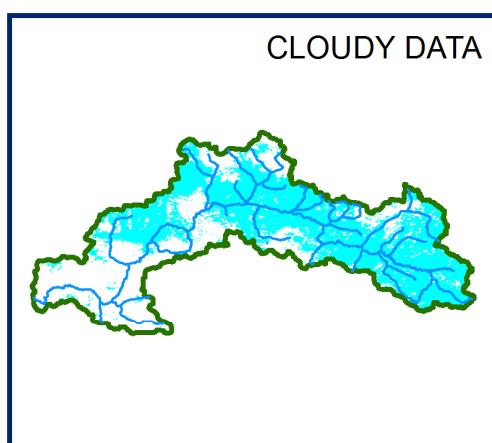
15 NOVEMBER 2009



20 NOVEMBER 2009



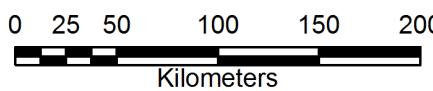
24 NOVEMBER 2009



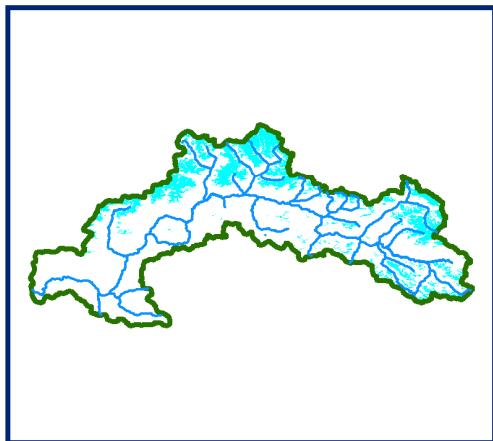
25 NOVEMBER 2009



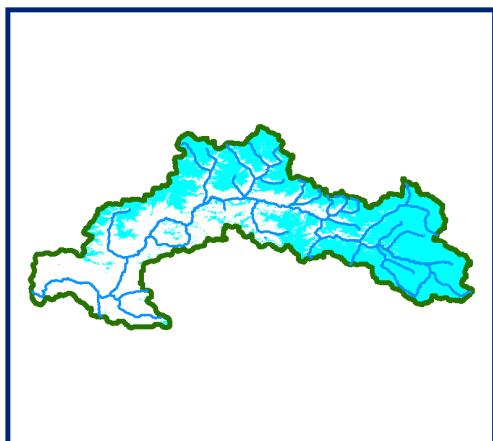
SNOW



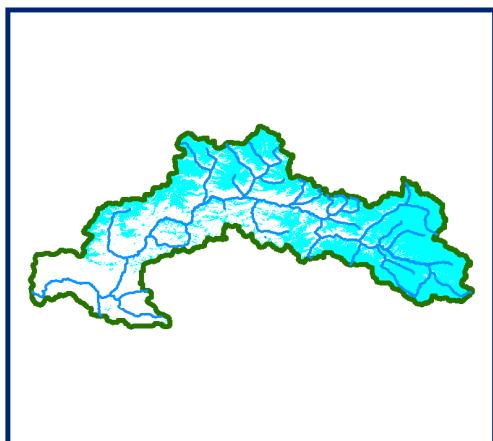
## 10 DAILY SNOW COVER MAP: KISANGANGA BASIN



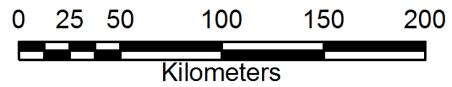
DATA USED  
**01 NOVEMBER 2009**



DATA USED  
**20 NOVEMBER 2009**

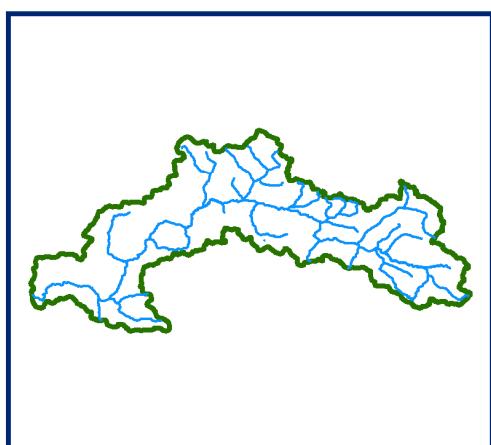


DATA USED  
**24 NOVEMBER 2009**

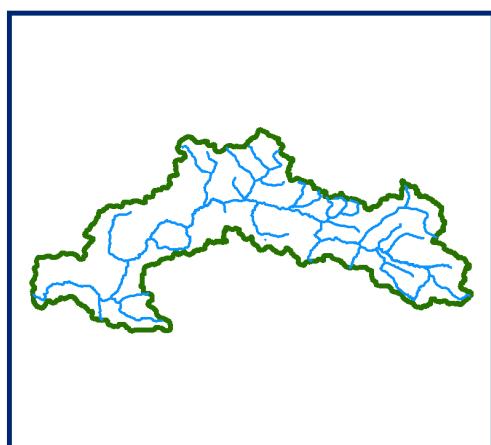


**SNOW COVER MAP:**

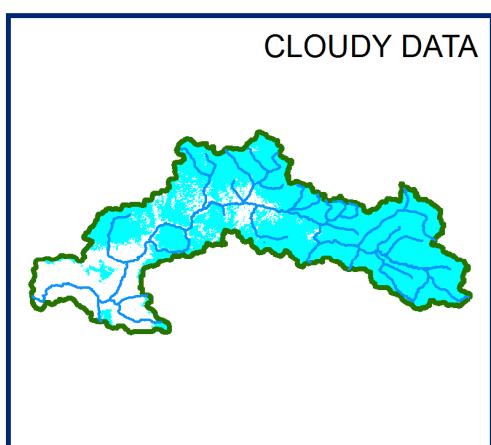
**KISANGANGA BASIN**



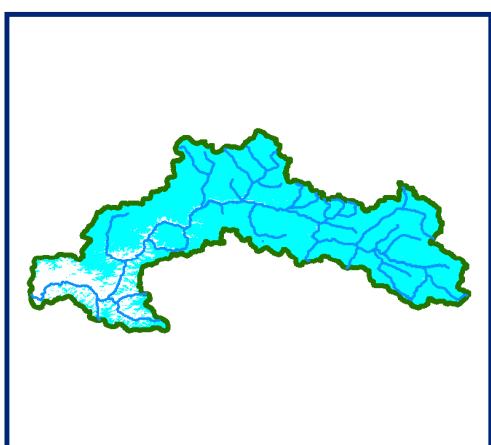
**DATA NOT AVAILABLE**



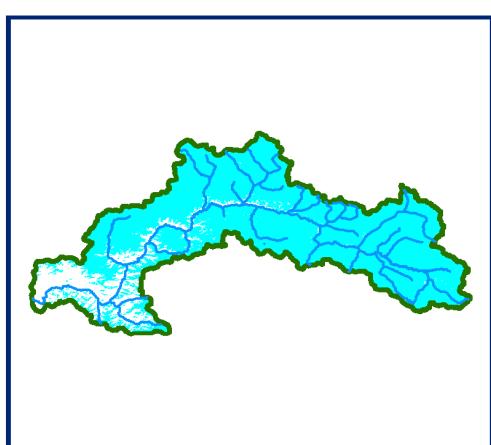
**DATA NOT AVAILABLE**



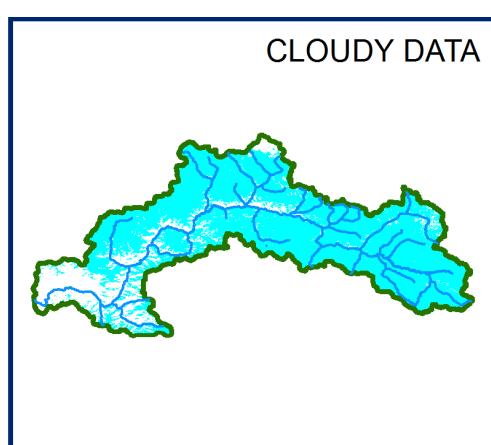
**14 DECEMBER 2009**



**18 DECEMBER 2009**



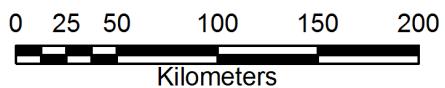
**23 DECEMBER 2009**



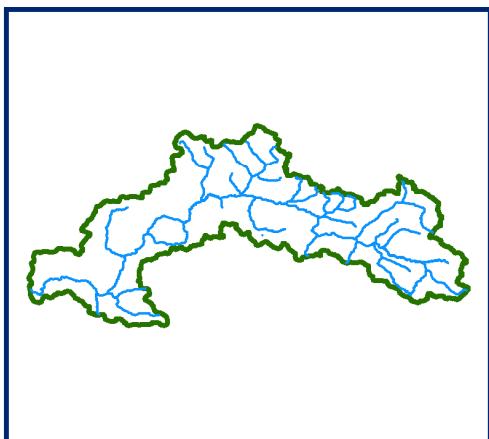
**CLOUDY DATA**



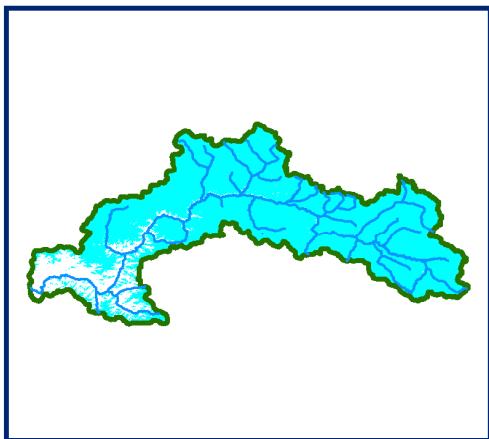
**SNOW**



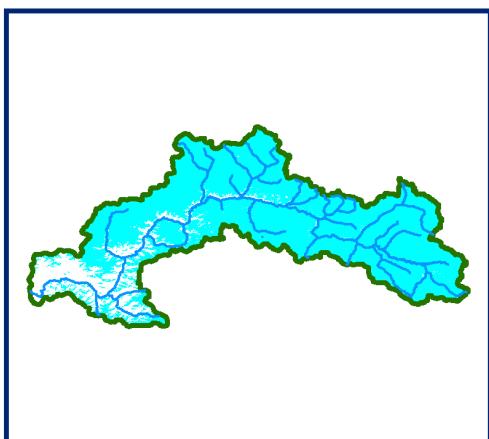
## 10 DAILY SNOW COVER MAP: KISANGANGA BASIN



DATA NOT AVAILABLE



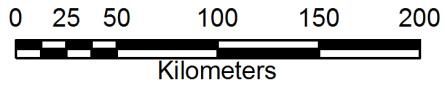
DATA USED  
**18 DECEMBER 2009**



DATA USED  
**23 DECEMBER 2009**

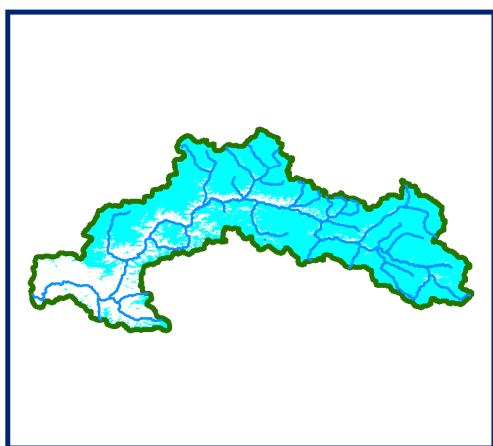


SNOW

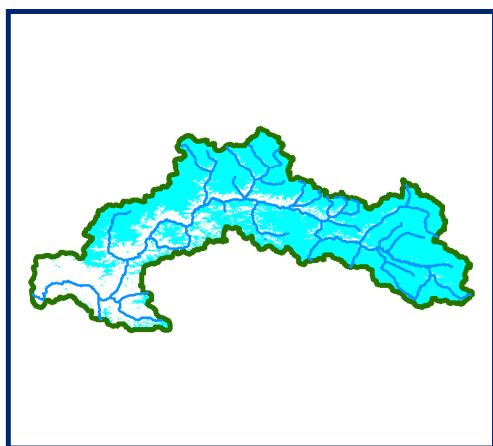


**SNOW COVER MAP:**

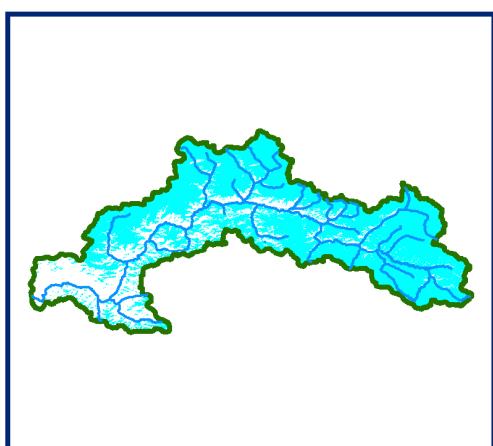
**KISANGANGA BASIN**



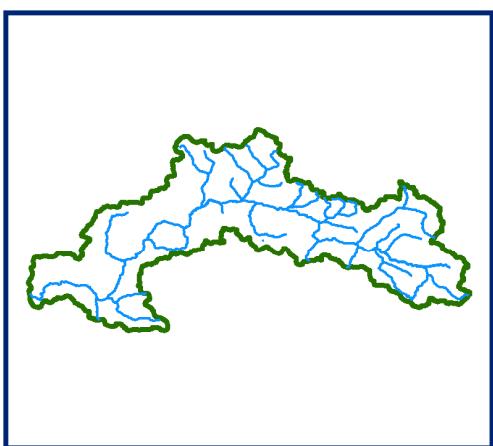
**02 JANUARY 2010**



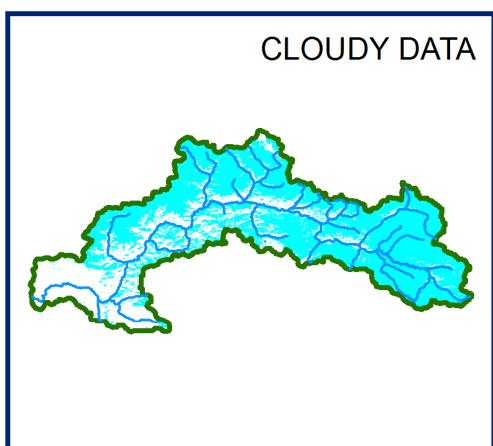
**07 JANUARY 2010**



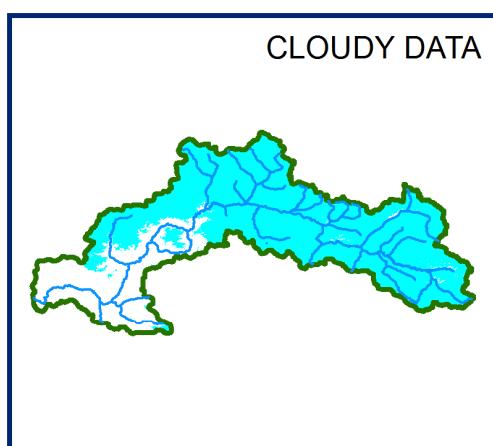
**11 JANUARY 2010**



**DATA NOT AVAILABLE**



**21 JANUARY 2010**



**26 JANUARY 2010**

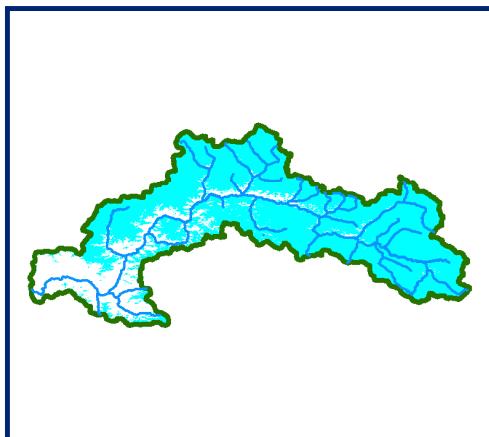


**SNOW**

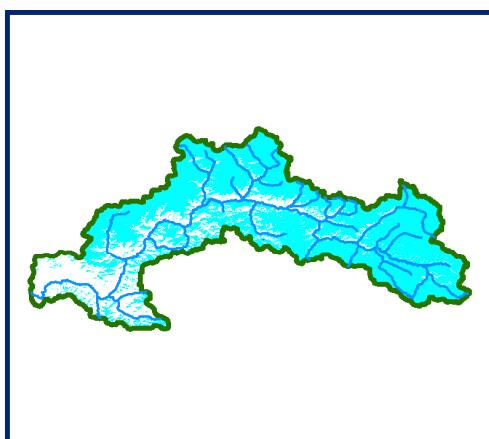
0 25 50 100 150 200

Kilometers

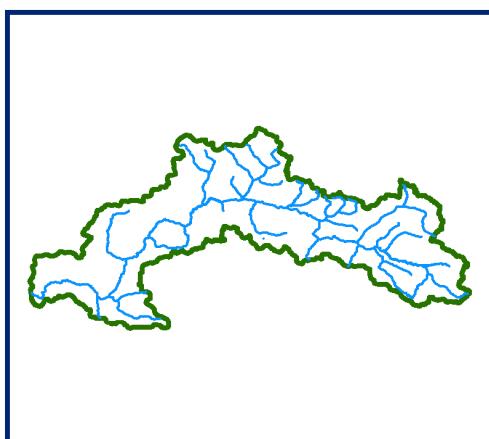
## 10 DAILY SNOW COVER MAP: KISANGANGA BASIN



DATA USED  
**02 JANUARY 2010**



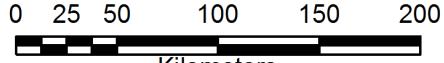
DATA USED  
**11 JANUARY 2010**



**DATA NOT AVAILABLE**

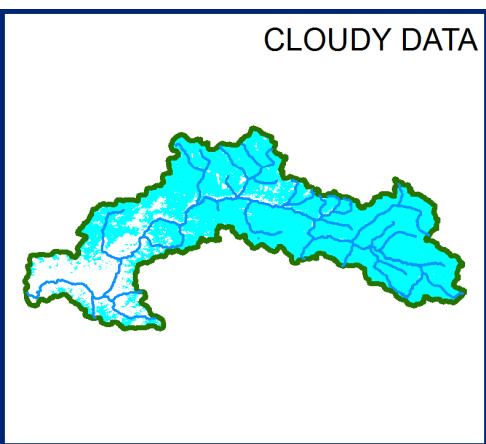


SNOW

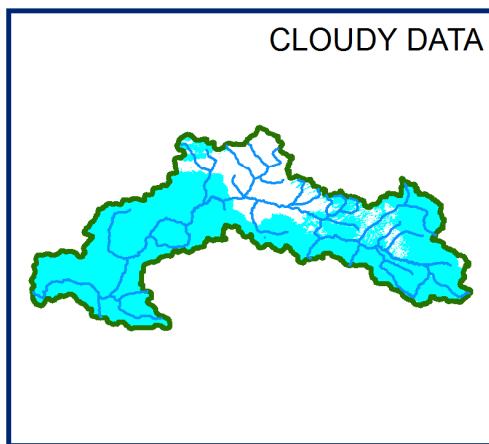


## SNOW COVER MAP:

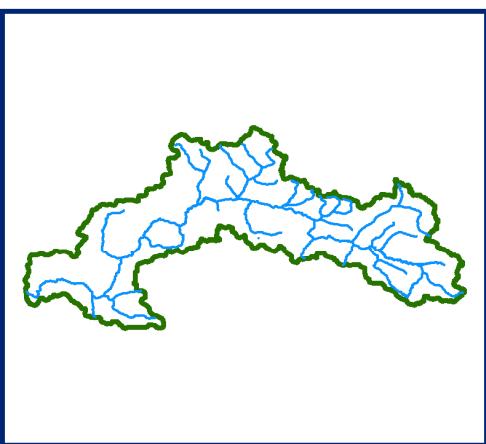
## KISANGANGA BASIN



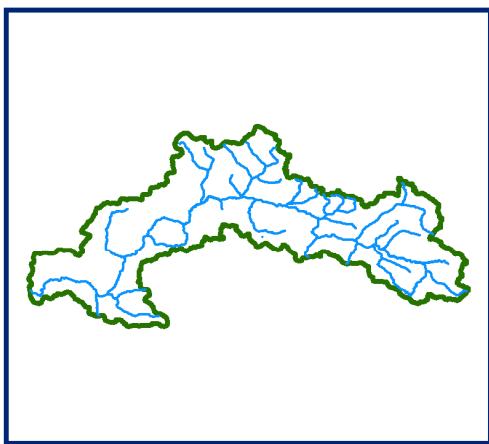
04 FEBRUARY 2010



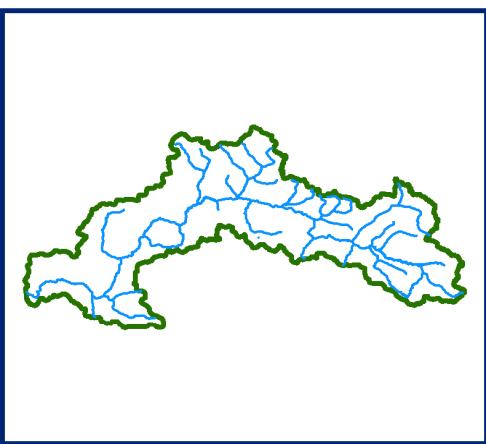
05 FEBRUARY 2010



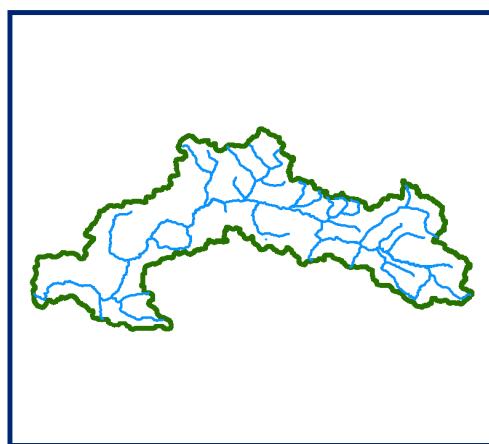
DATA NOT AVAILABLE



DATA NOT AVAILABLE



DATA NOT AVAILABLE



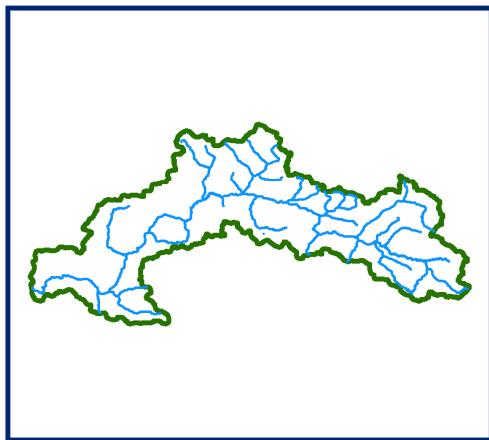
DATA NOT AVAILABLE



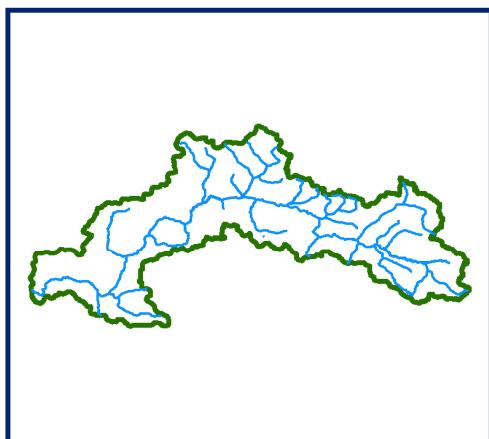
SNOW



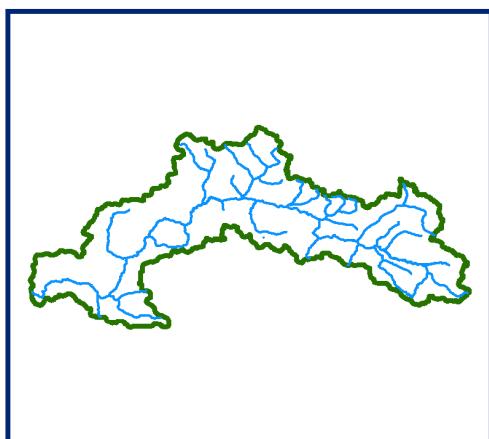
## 10 DAILY SNOW COVER MAP: KISANGANGA BASIN



**DATA NOT AVAILABLE**



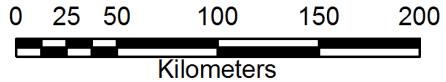
**DATA NOT AVAILABLE**



**DATA NOT AVAILABLE**

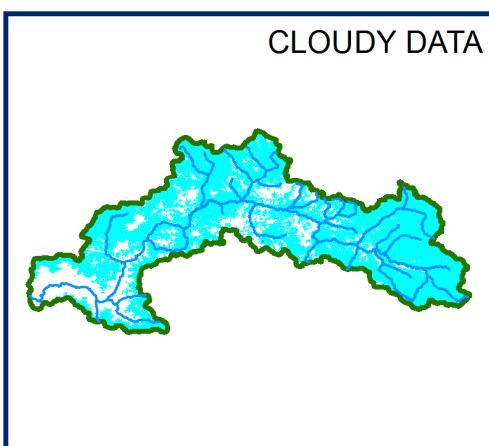


SNOW

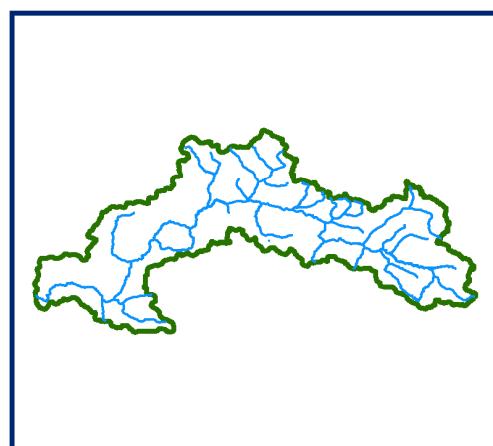


## SNOW COVER MAP:

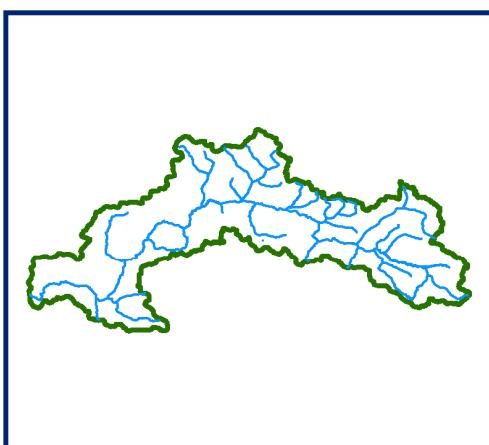
## KISANGANGA BASIN



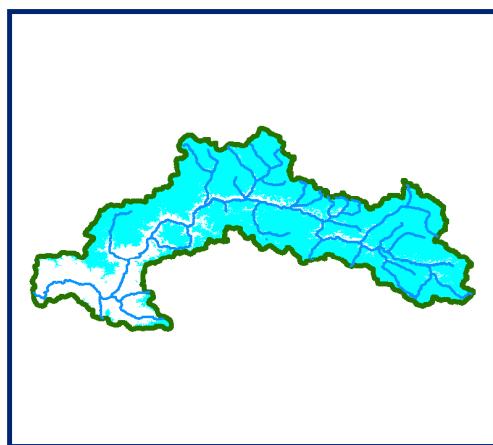
05 MARCH 2010



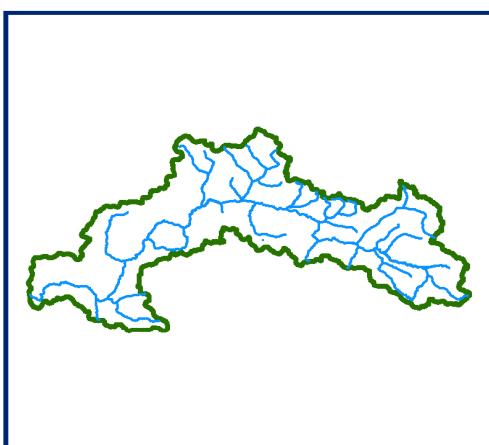
DATA NOT AVAILABLE



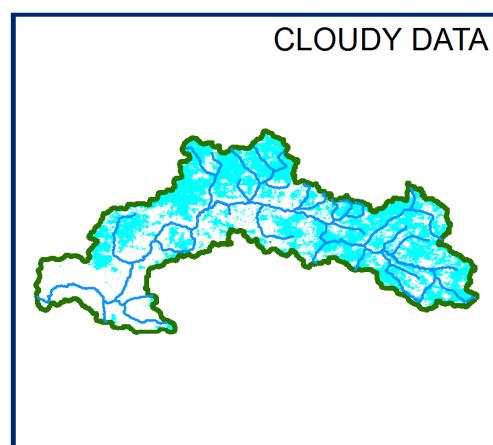
DATA NOT AVAILABLE



20 MARCH 2010



DATA NOT AVAILABLE



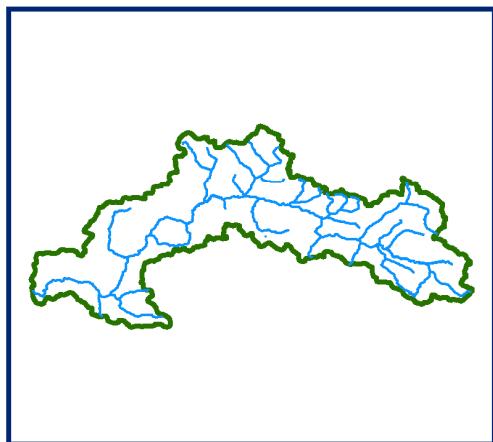
24 MARCH 2010



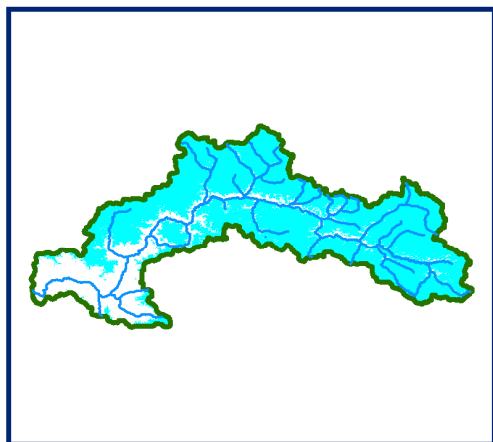
SNOW



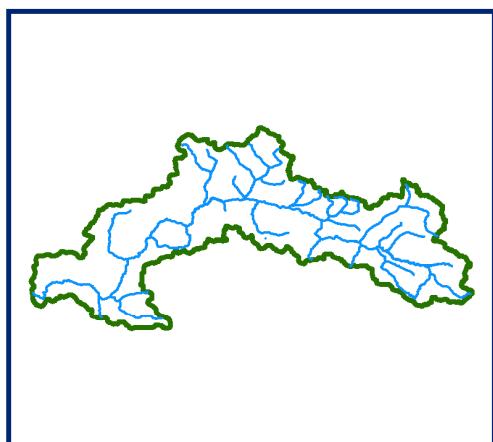
## 10 DAILY SNOW COVER MAP: KISANGANGA BASIN



**DATA NOT AVAILABLE**



**DATA USED  
20 MARCH 2010**



**DATA NOT AVAILABLE**

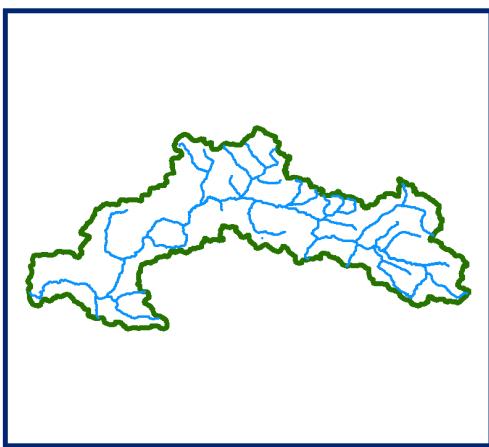


**SNOW**

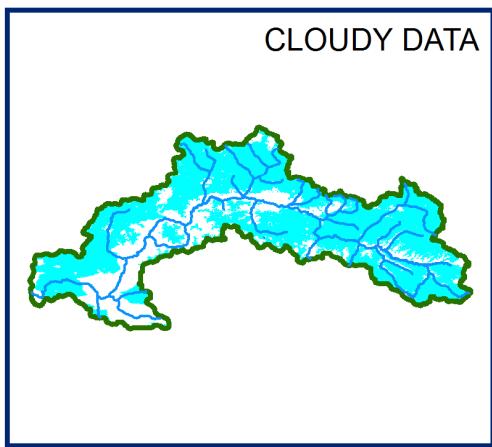


## SNOW COVER MAP:

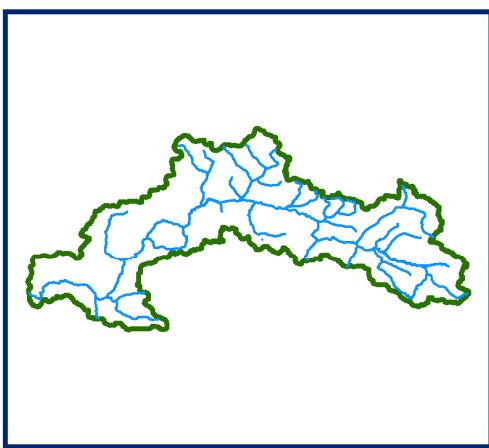
## KISANGANGA BASIN



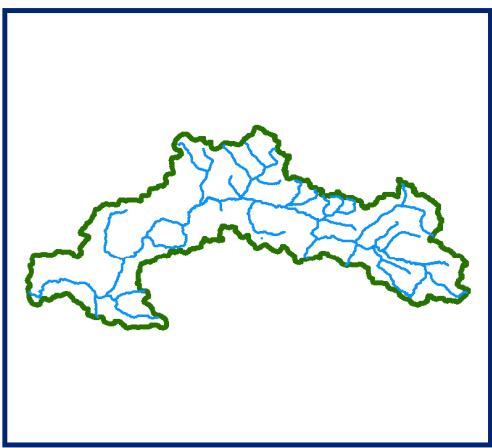
DATA NOT AVAILABLE



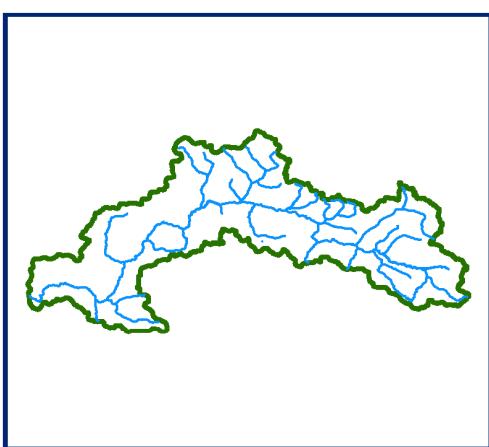
08 APRIL 2010



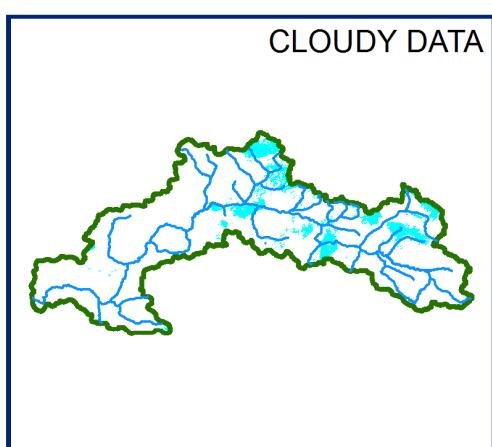
DATA NOT AVAILABLE



DATA NOT AVAILABLE



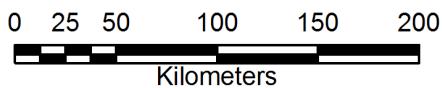
DATA NOT AVAILABLE



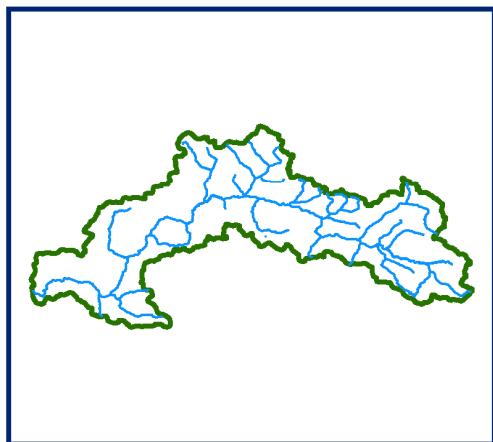
27 APRIL 2010



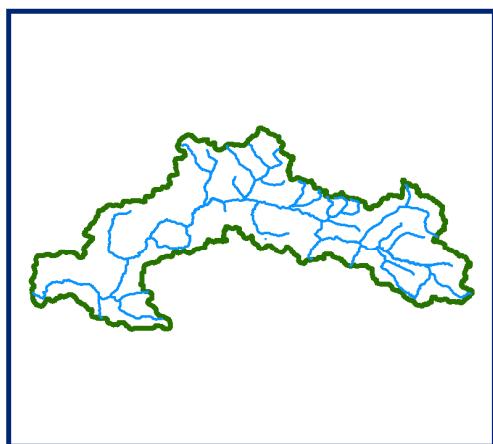
SNOW



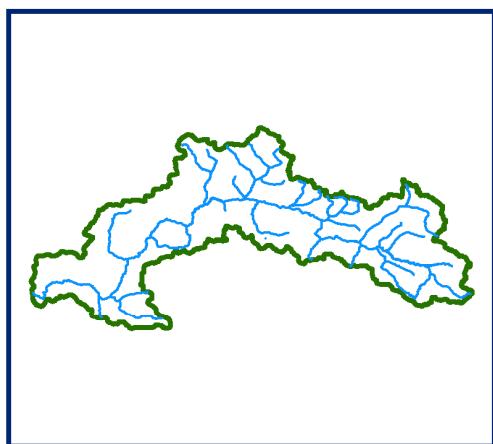
## 10 DAILY SNOW COVER MAP: KISANGANGA BASIN



DATA NOT AVAILABLE



DATA NOT AVAILABLE



DATA NOT AVAILABLE

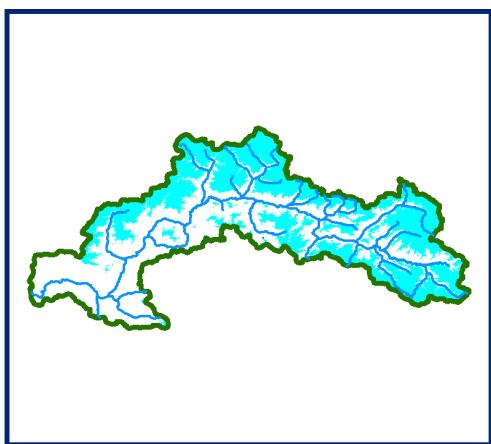


SNOW

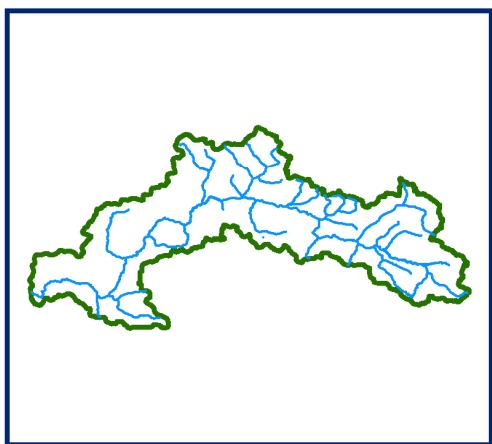


**SNOW COVER MAP:**

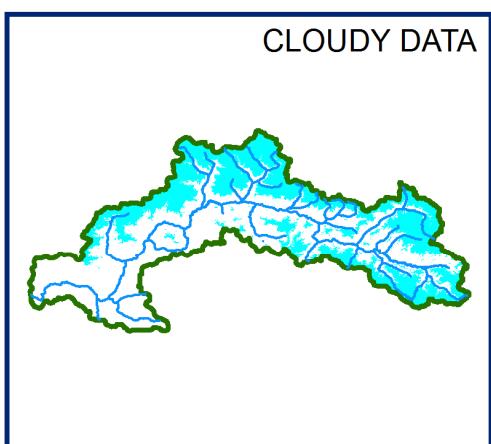
**KISANGANGA BASIN**



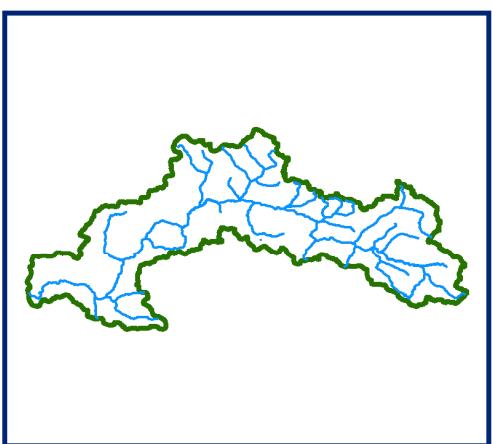
**02 MAY 2010**



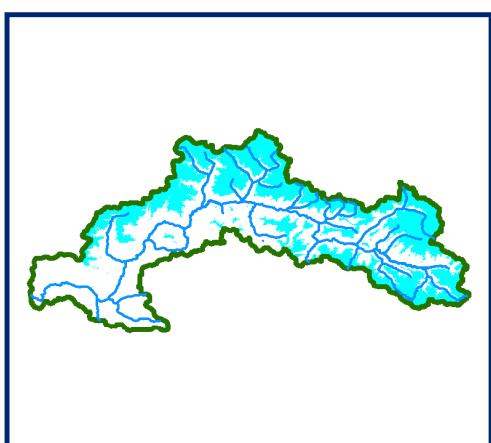
**DATA NOT AVAILABLE**



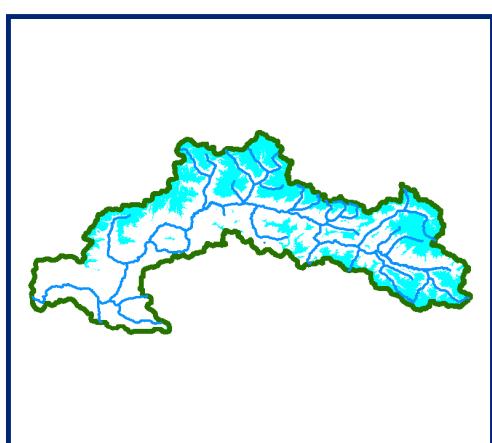
**11 MAY 2010**



**DATA NOT AVAILABLE**



**21 MAY 2010**



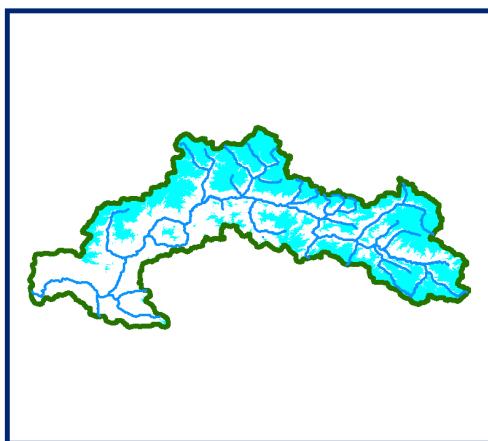
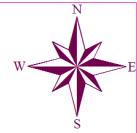
**26 MAY 2010**



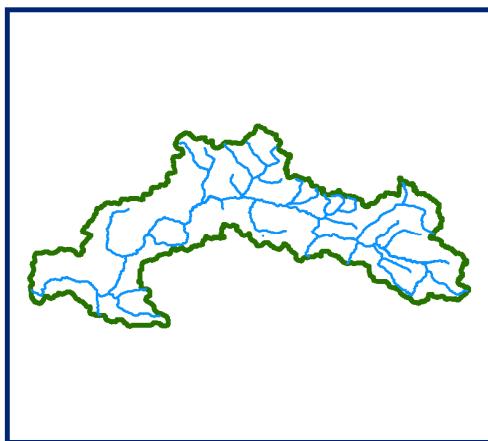
**SNOW**



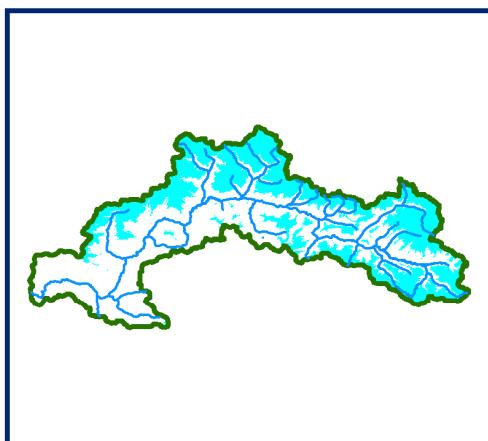
## 10 DAILY SNOW COVER MAP: KISANGANGA BASIN



DATA USED  
**02 MAY 2010**



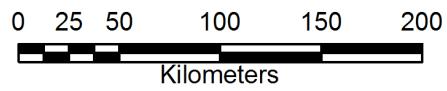
DATA NOT AVAILABLE



DATA USED  
**21 MAY 2010**

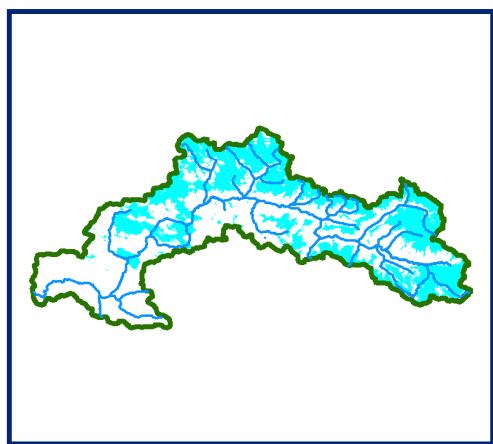


SNOW

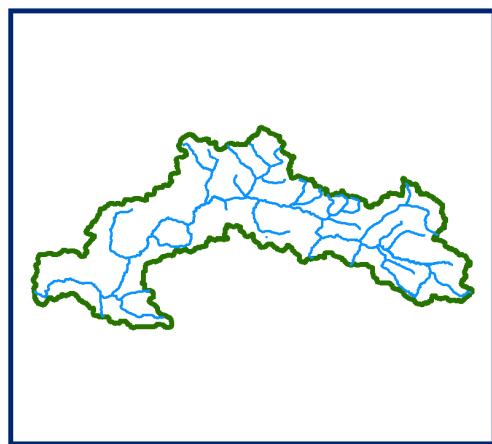


**SNOW COVER MAP:**

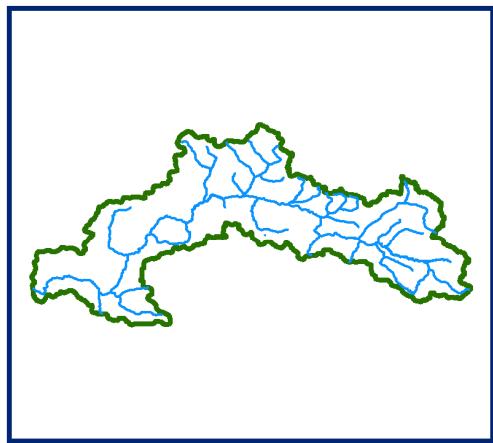
**KISANGANGA BASIN**



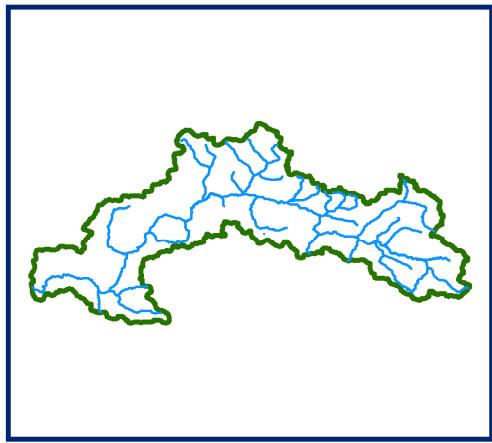
**05 JUNE 2010**



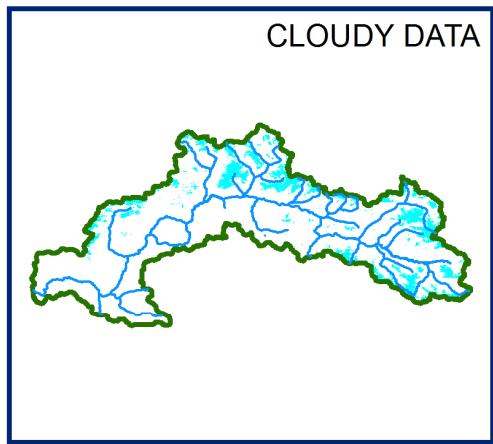
**DATA NOT AVAILABLE**



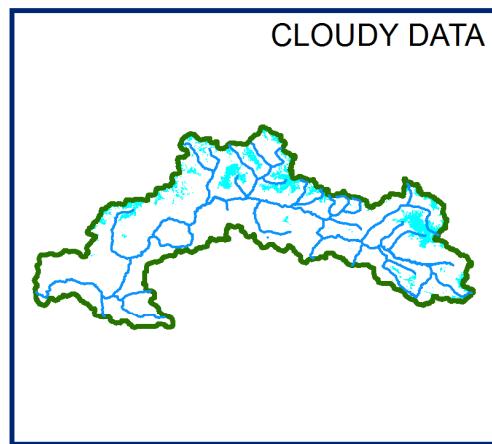
**DATA NOT AVAILABLE**



**DATA NOT AVAILABLE**



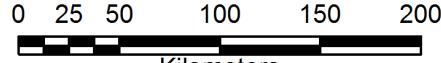
**28 JUNE 2010**



**29 JUNE 2010**

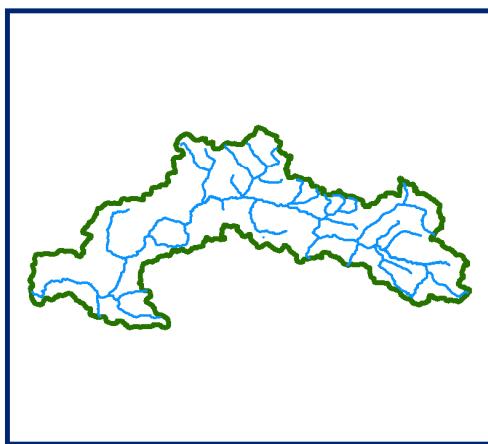


**SNOW**

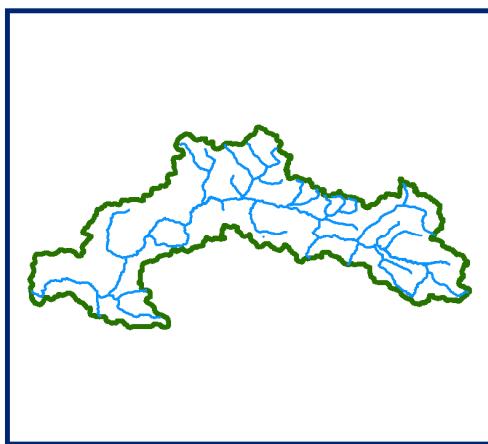


**Kilometers**

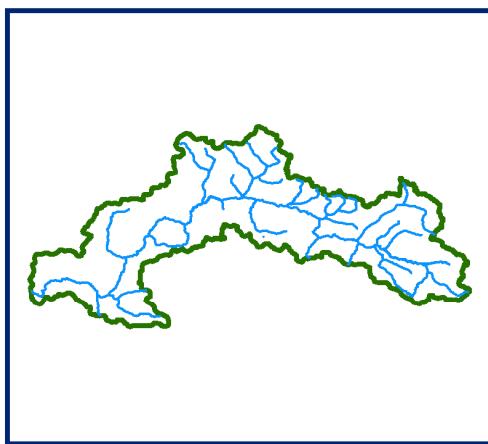
## 10 DAILY SNOW COVER MAP: KISANGANGA BASIN



DATA NOT AVAILABLE



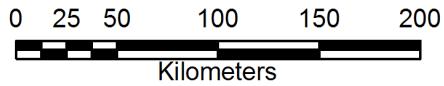
DATA NOT AVAILABLE



DATA NOT AVAILABLE



SNOW



### AREAL EXTENT OF SNOW (5 DAILY)

**BASIN NAME: ASTOR**

**BASIN AREA: 4008 sq km**

S No	Date	Snow cover (sq km)	Snow cover (%)	S No	Date	Snow cover (sq km)	Snow cover (%)
<b>October 2009</b>							
1	03-Oct-09	155	4	5	17-Oct-09	933	23
2	07-Oct-09	560	14	6	27-Oct-09	900	22
3	08-Oct-09	2088	52	7	31-Oct-09	2476	62
4	12-Oct-09	723	18				
<b>November 2009</b>							
1	01-Nov-09	2049	51	5	20-Nov-09	3035	76
2	06-Nov-09	1298	32	6	24-Nov-09	2834	71
3	10-Nov-09	3624	90	7	25-Nov-09	2484	62
4	15-Nov-09	1988	50				
<b>December 2009</b>							
1	04-Dec-09	2485	62	5	23-Dec-09	3716	93
2	14-Dec-09	3755	94	6	24-Dec-09	3703	92
3	18-Dec-09	3792	95	7	28-Dec-09	2831	71
4	19-Dec-09	3757	94				
<b>January 2010</b>							
1	02-Jan-10	3631	91	4	21-Jan-10	3449	86
2	07-Jan-10	3607	90	5	26-Jan-10	3810	95
3	11-Jan-10	3215	80	6	31-Jan-10	3729	93
<b>February 2010</b>							
1	04-Feb-10	3406	85	3	10-Feb-10	3980	99
2	05-Feb-10	2786	70				
<b>March 2010</b>							
1	05-Mar-10	3264	81	3	20-Mar-10	3617	90
2	15-Mar-10	3699	92	4	24-Mar-10	2925	73
<b>APRIL 2010</b>							
1	08-Apr-10	3214	80	2	27-Apr-10	3281	82
<b>MAY 2010</b>							
1	02-May-10	2888	72	4	26-May-10	2696	67
2	11-May-10	2573	64	5	31-May-10	2628	66
3	21-May-10	2927	73				
<b>JUNE 2010</b>							
1	05-Jun-10	2690	67	3	29-Jun-10	999	25
2	28-Jun-10	1206	30				

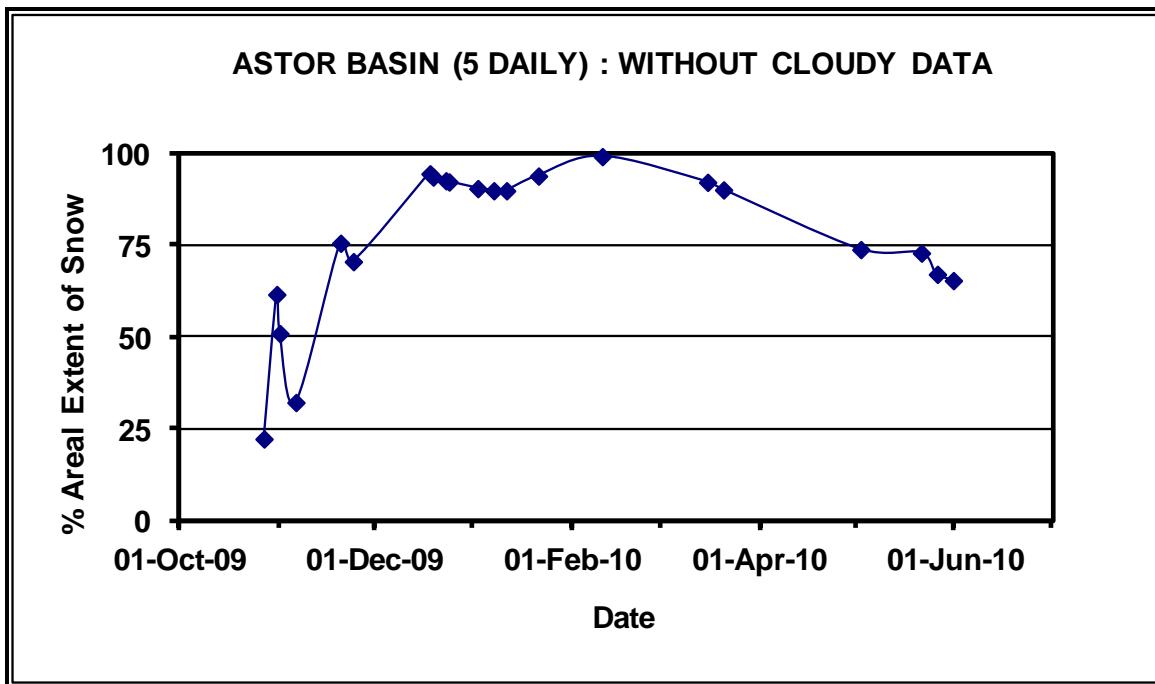
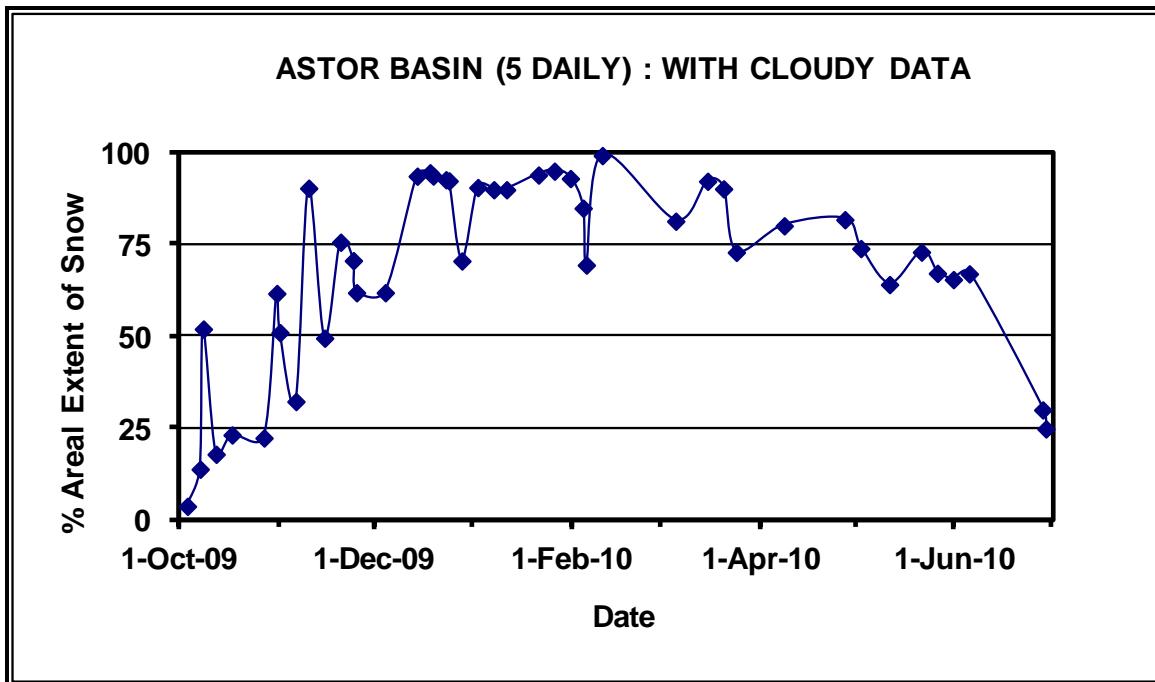
**AREAL EXTENT OF SNOW (10 DAILY)**

**BASIN NAME: ASTOR**

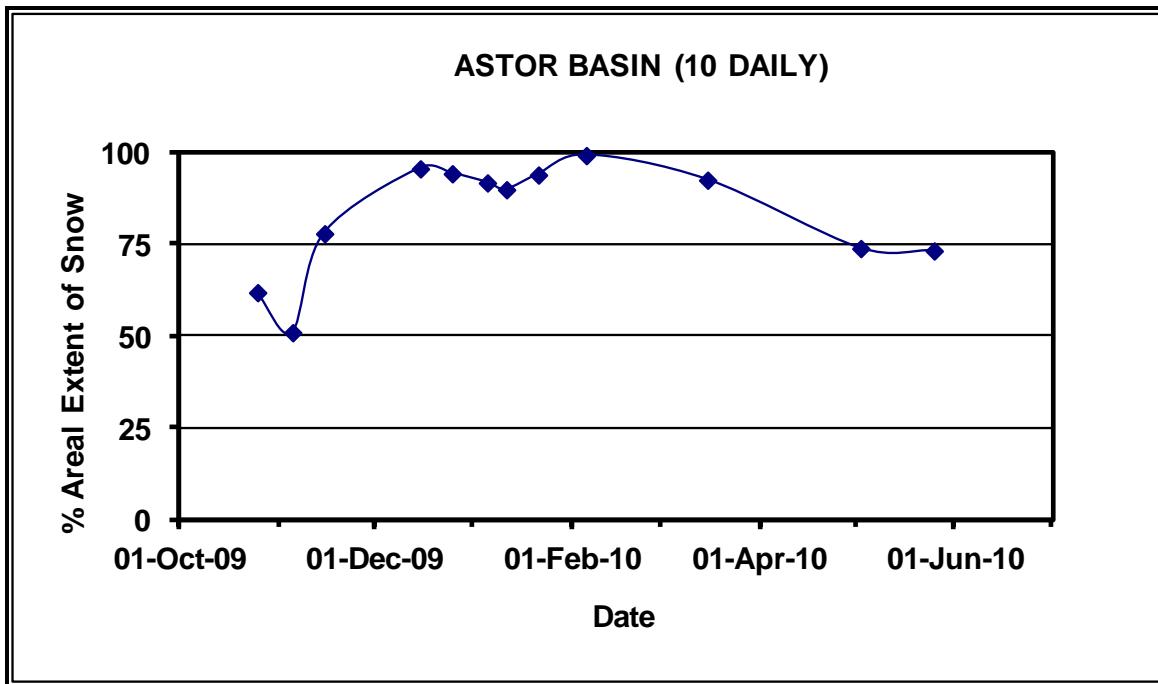
**BASIN AREA: 4008 sq km**

S No	Date	Snow cover (sq km)	Snow cover (%)	S No	Date	Snow cover (sq km)	Snow cover (%)
<b>October 2009</b>							
1	27-oct-09	2485	62				
<b>November 2009</b>							
2	01-Nov-09	2049	51	3	20-Nov-09	3127	78
<b>December 2009</b>							
4	18-Dec-09	3835	96	5	24-Dec-09	3781	94
<b>January 2010</b>							
6	05-Jan-10	3687	92	8	25-Jan-10	3768	94
7	15-Jan-10	3607	90				
<b>February 2010</b>							
9	10-Feb-10	3967	99				
<b>March 2010</b>							
10	20-Mar-10	3727	93				
<b>May 2010</b>							
11	5-May-10	2965	74	12	25-May-10	2926	73

### Snow cover depletion curve



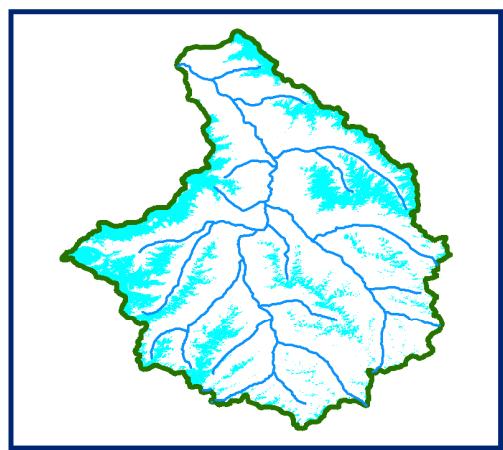
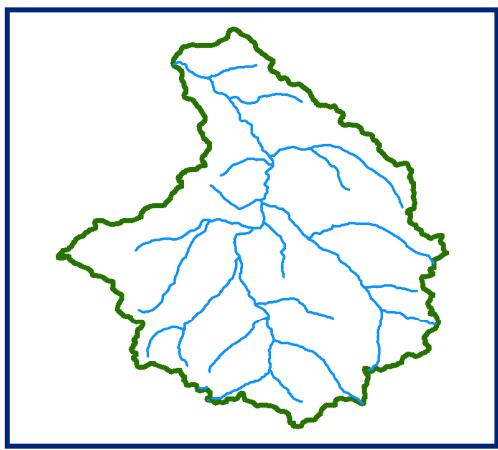
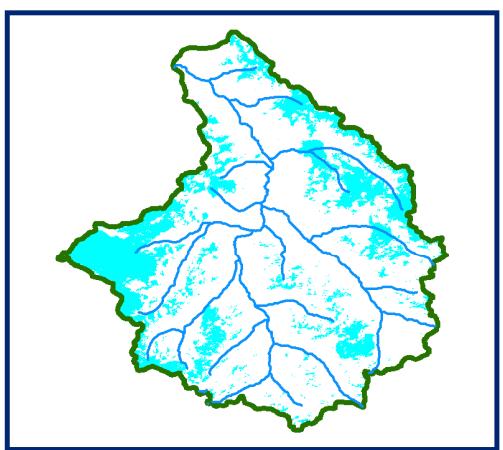
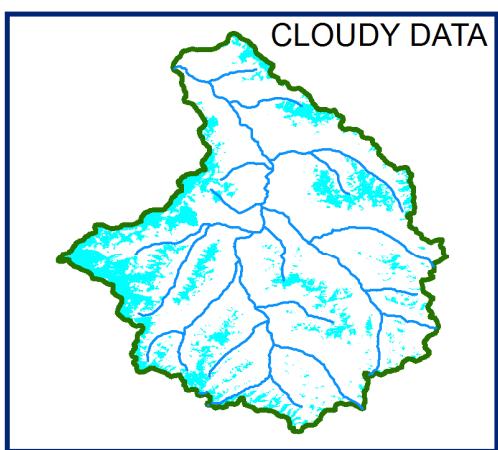
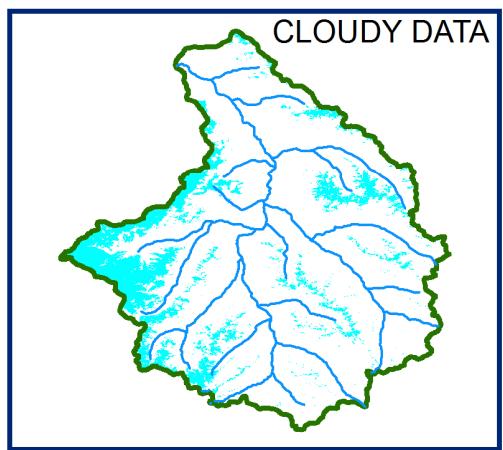
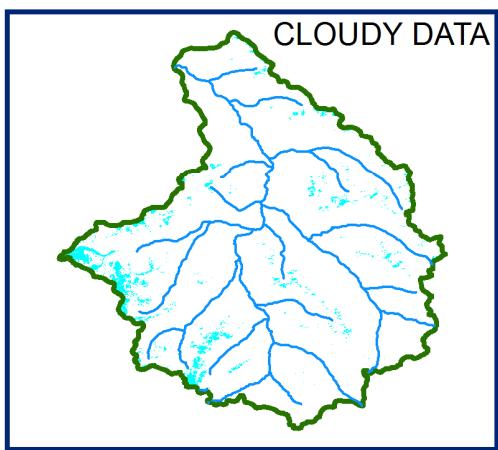
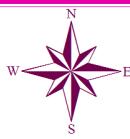
## Snow cover depletion curve



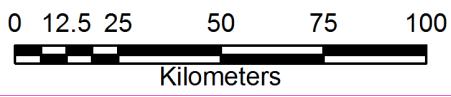
# *SNOW COVER MAP*

## SNOW COVER MAP:

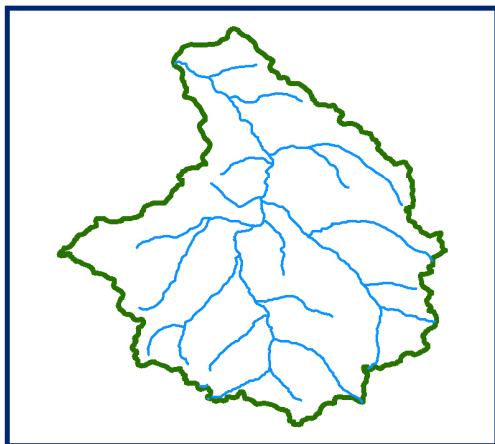
## ASTOR BASIN



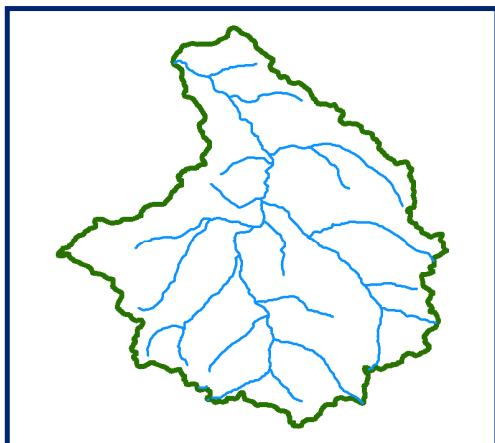
SNOW



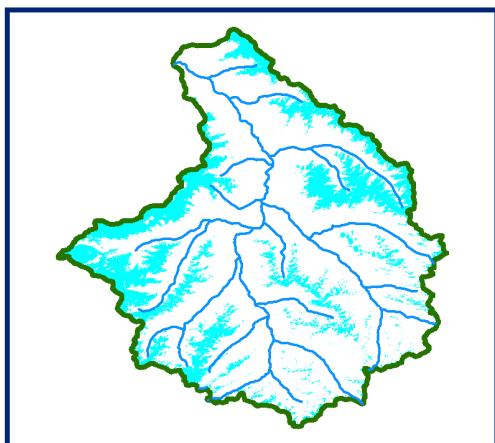
## 10 DAILY SNOW COVER MAP: ASTOR BASIN



DATA NOT AVAILABLE



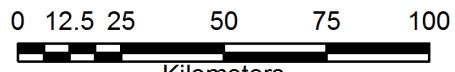
DATA NOT AVAILABLE



DATA USED  
27 OCTOBER 2009

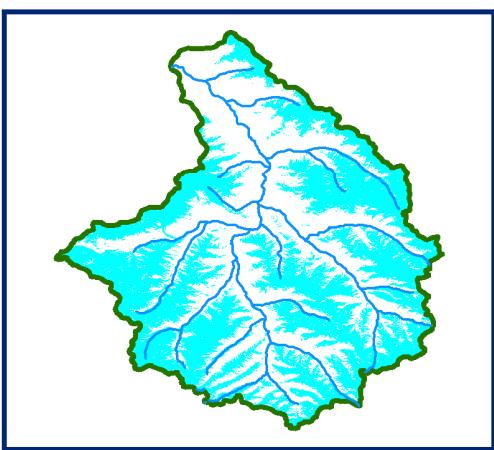


SNOW

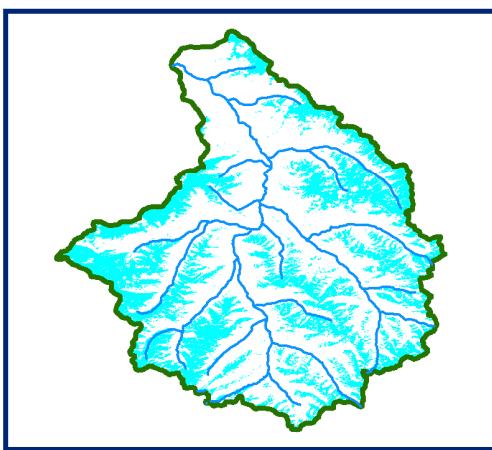


**SNOW COVER MAP:**

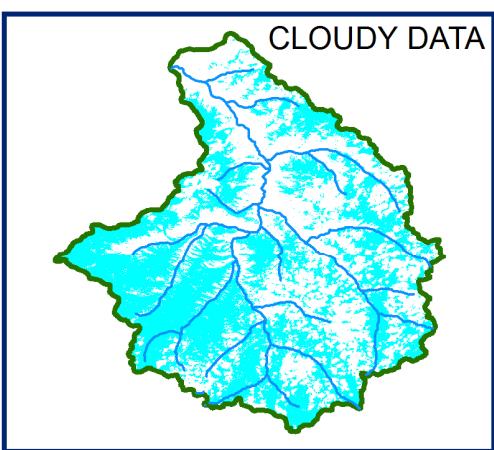
**ASTOR BASIN**



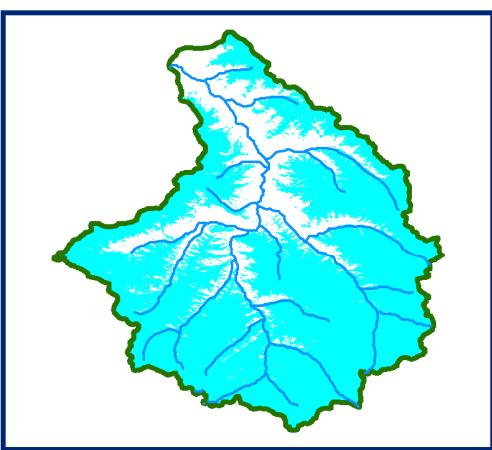
**01 NOVEMBER 2009**



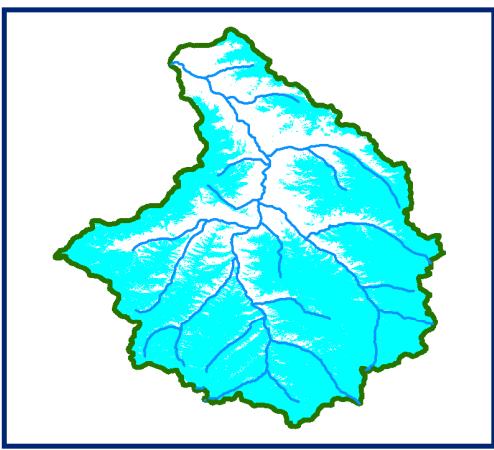
**06 NOVEMBER 2009**



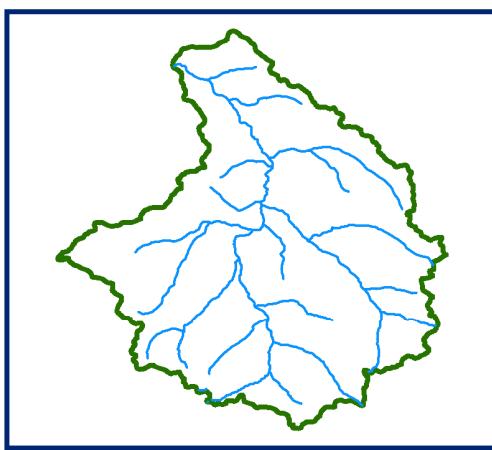
**15 NOVEMBER 2009**



**20 NOVEMBER 2009**



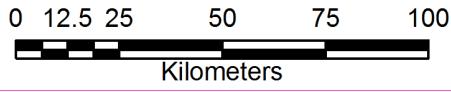
**24 NOVEMBER 2009**



**DATA NOT AVAILABLE**

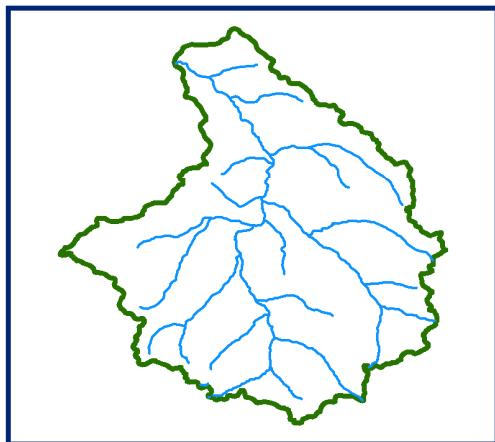


**SNOW**

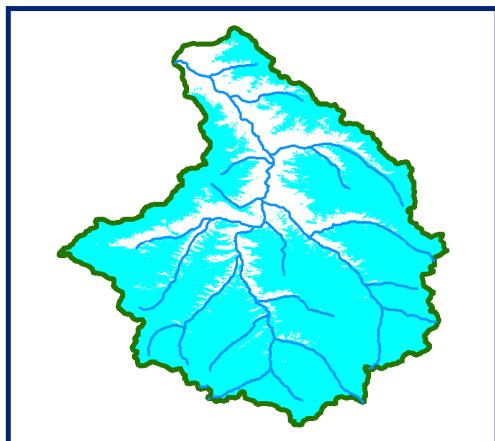


Kilometers

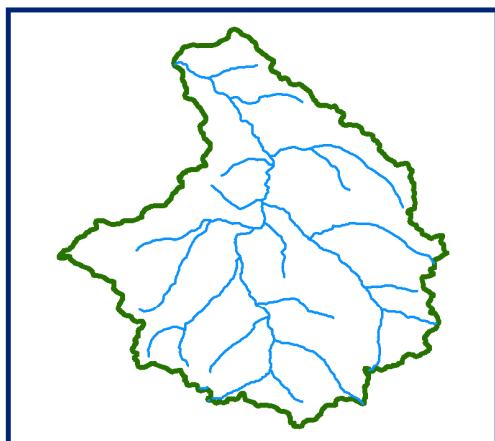
## 10 DAILY SNOW COVER MAP: ASTOR BASIN



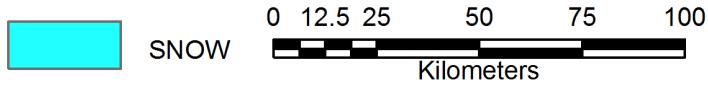
**DATA NOT AVAILABLE**



**DATA USED  
20 NOVEMBER 2009**

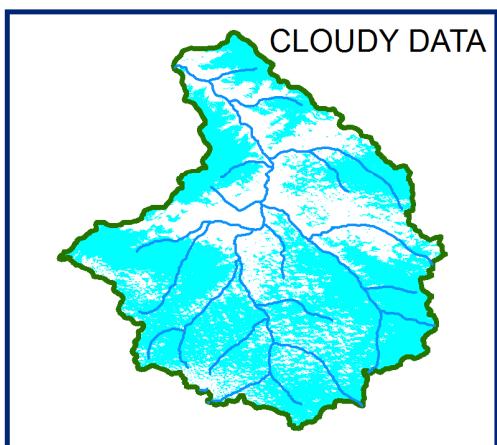


**DATA NOT AVAILABLE**

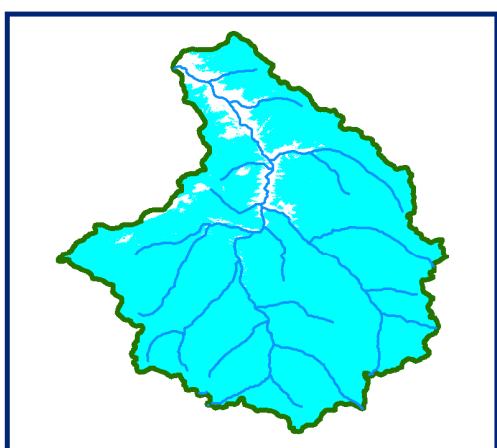
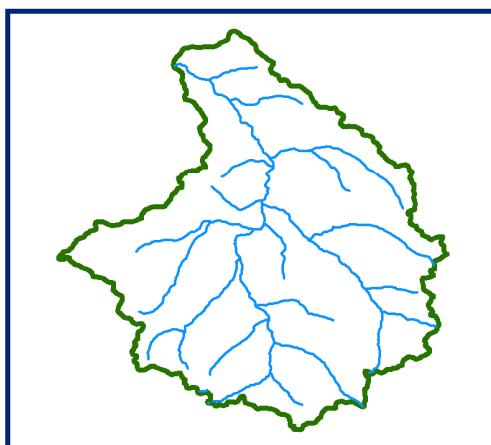


**SNOW COVER MAP:**

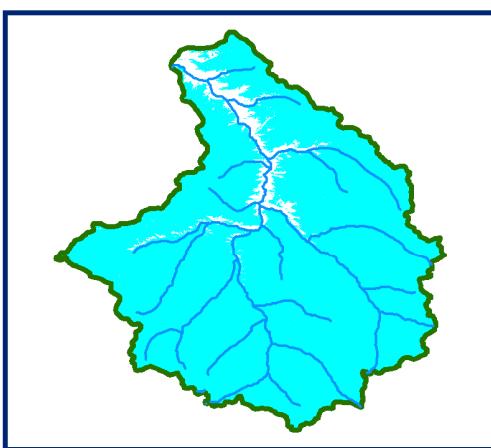
**ASTOR BASIN**



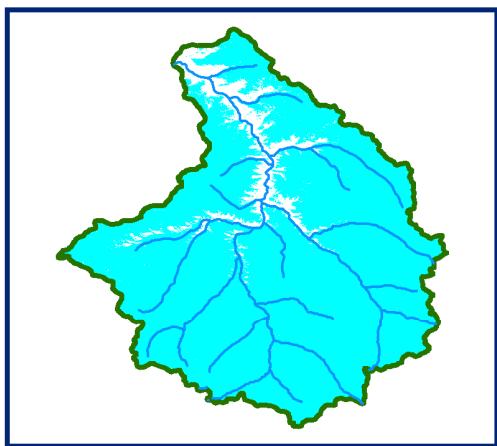
04 DECEMBER 2009



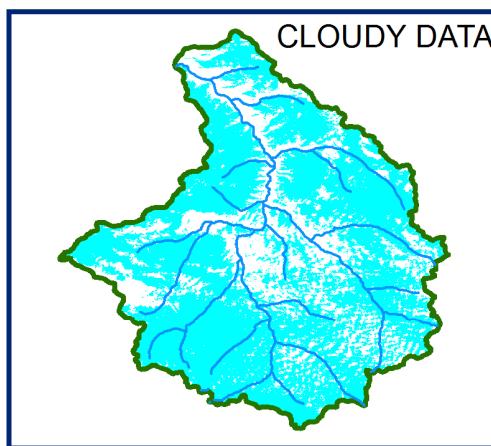
14 DECEMBER 2009



18 DECEMBER 2009



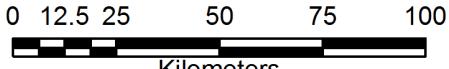
24 DECEMBER 2009



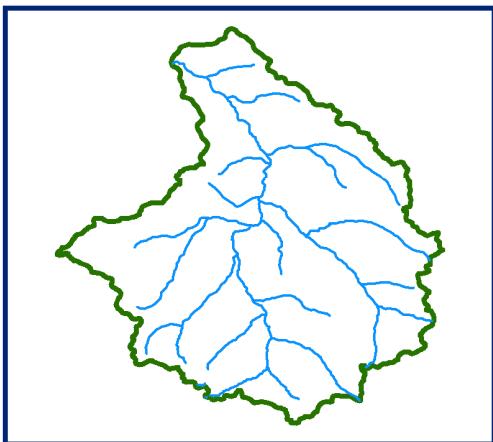
28 DECEMBER 2009



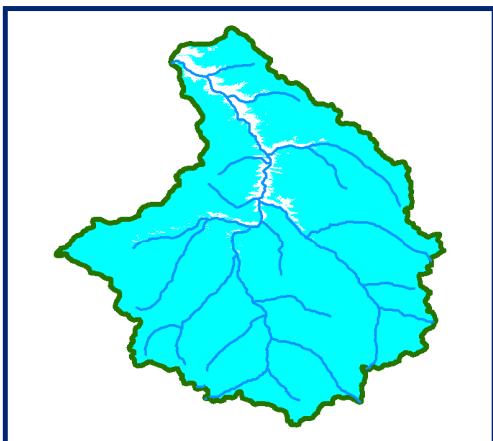
SNOW



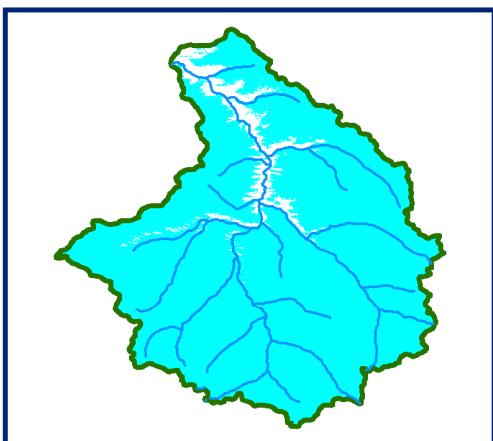
## 10 DAILY SNOW COVER MAP: ASTOR BASIN



**DATA NOT AVAILABLE**



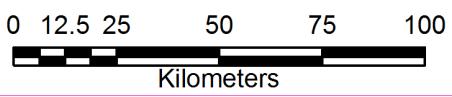
**DATA USED  
18 DECEMBER 2009**



**DATA USED  
24 DECEMBER 2009**

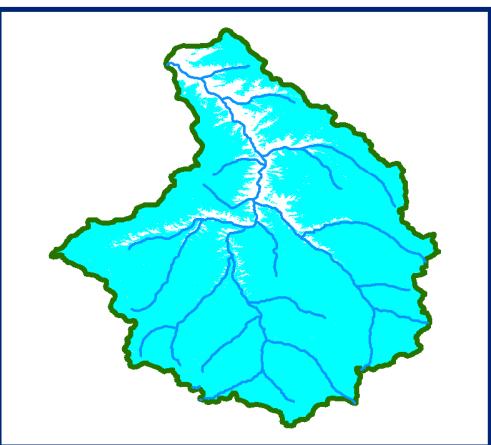


**SNOW**

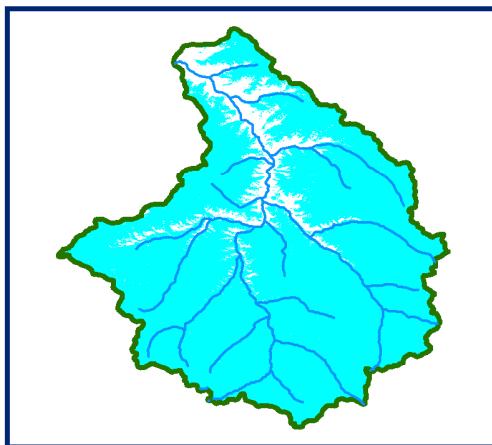


## SNOW COVER MAP:

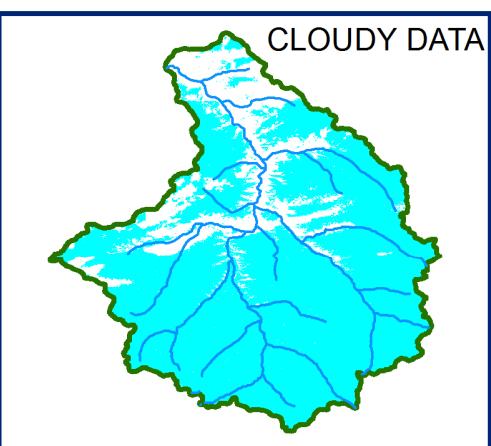
## ASTOR BASIN



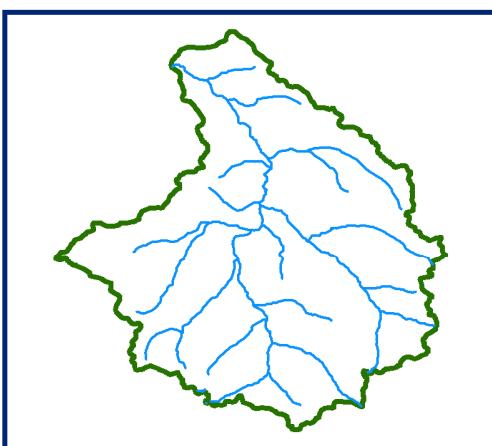
02 JANUARY 2010



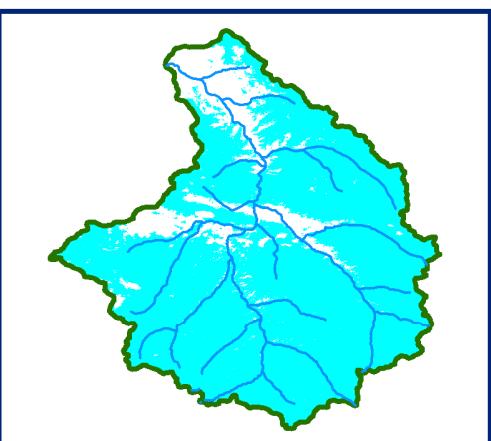
07 JANUARY 2010



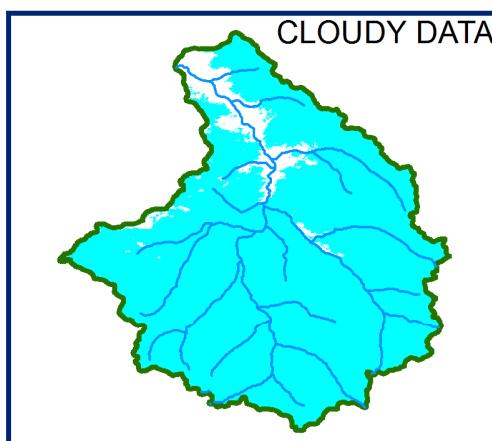
11 JANUARY 2010



DATA NOT AVAILABLE



21 JANUARY 2010



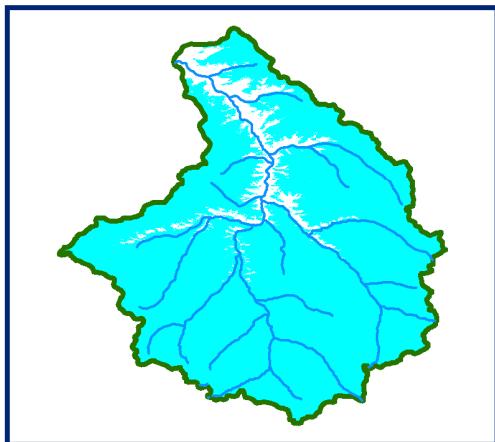
31 JANUARY 2010



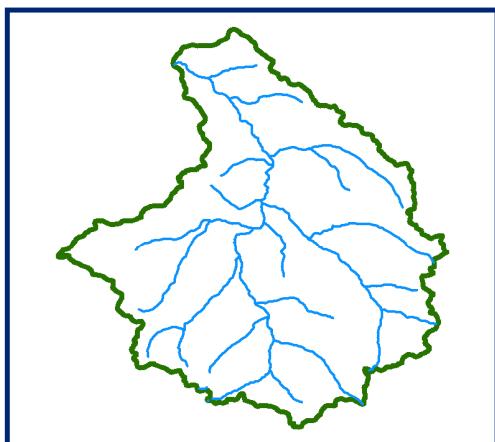
SNOW

0 12.5 25 50 75 100  
Kilometers

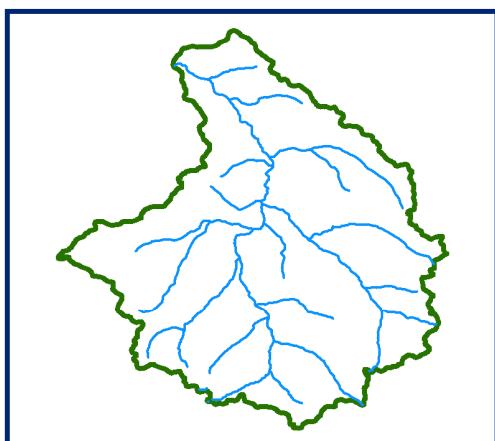
## 10 DAILY SNOW COVER MAP: ASTOR BASIN



DATA USED  
07 JANUARY 2010



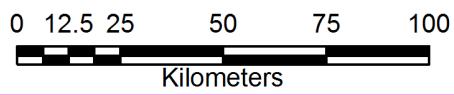
DATA NOT AVAILABLE



DATA NOT AVAILABLE

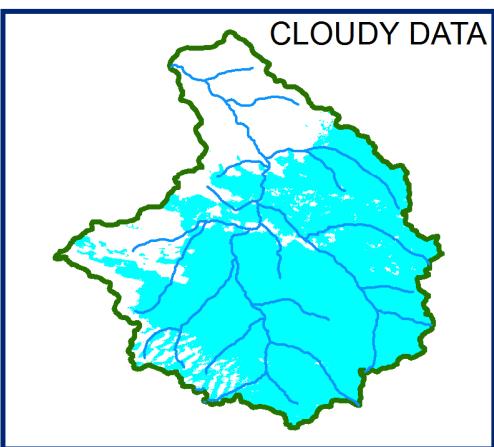


SNOW

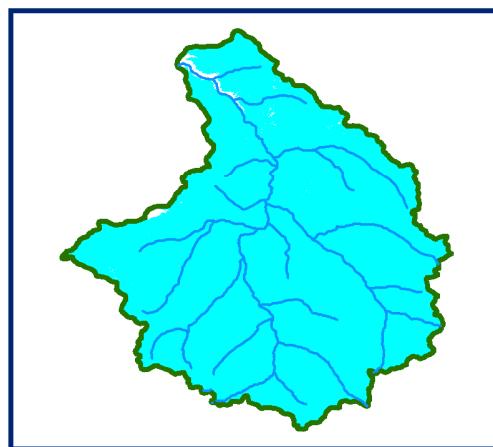


## SNOW COVER MAP:

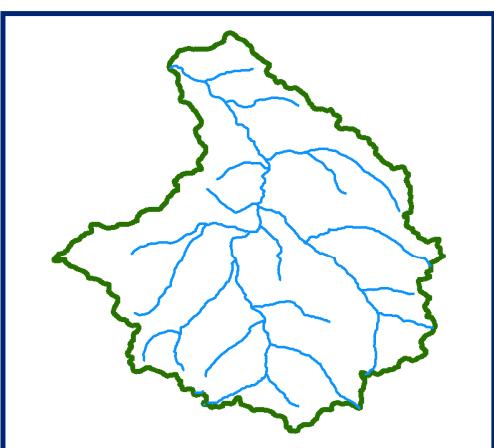
## ASTOR BASIN



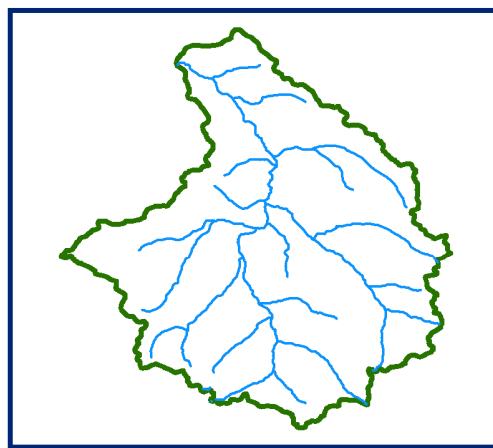
05 FEBRUARY 2010



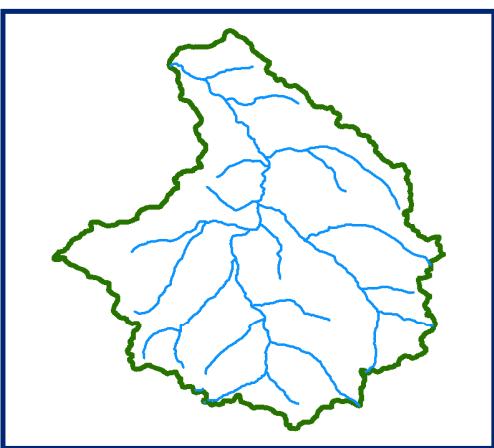
10 FEBRUARY 2010



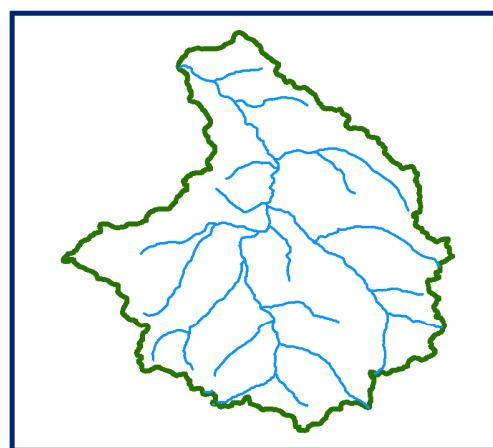
DATA NOT AVAILABLE



DATA NOT AVAILABLE



DATA NOT AVAILABLE



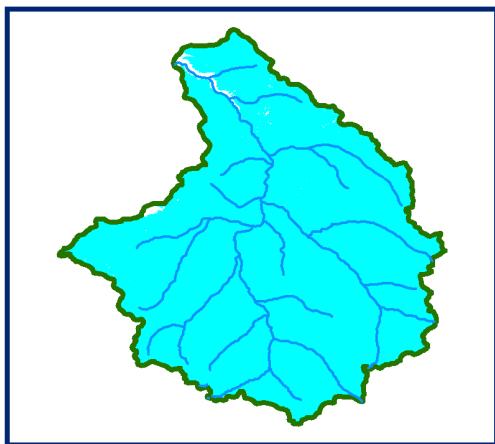
DATA NOT AVAILABLE



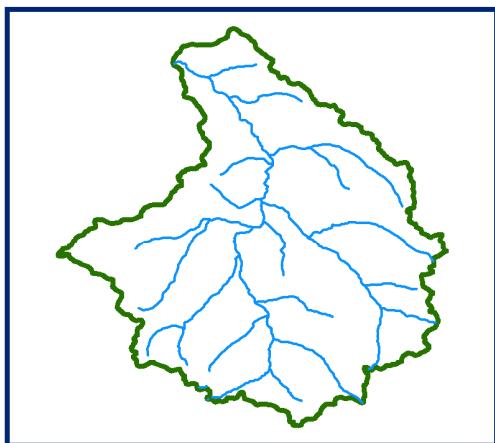
SNOW

0 12.5 25 50 75 100  
Kilometers

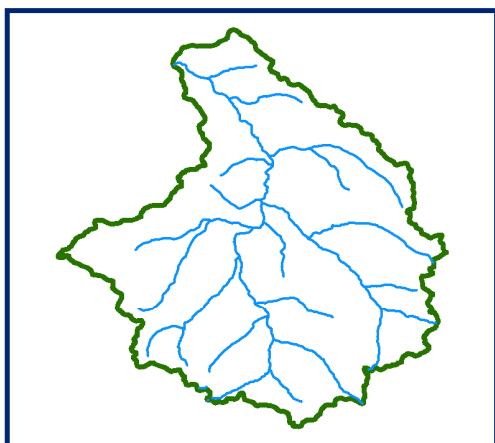
## 10 DAILY SNOW COVER MAP: ASTOR BASIN



DATA USED  
10 FEBRUARY 2010



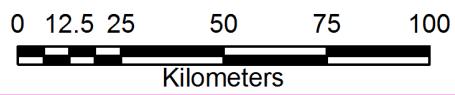
DATA NOT AVAILABLE



DATA NOT AVAILABLE

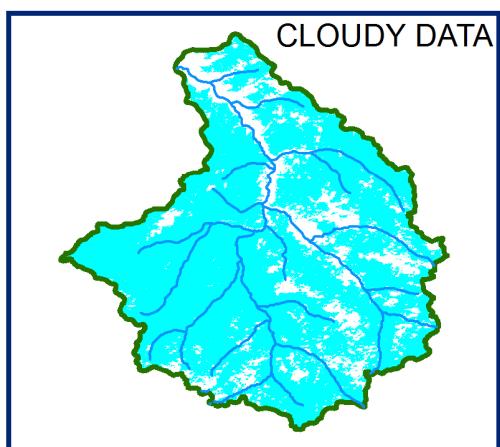


SNOW

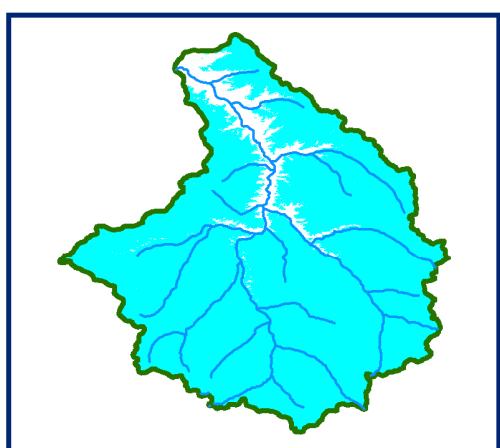
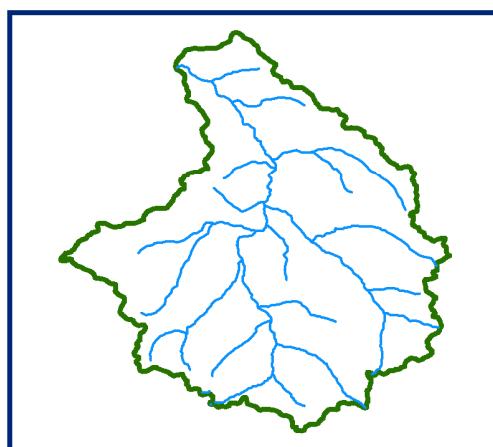


## SNOW COVER MAP:

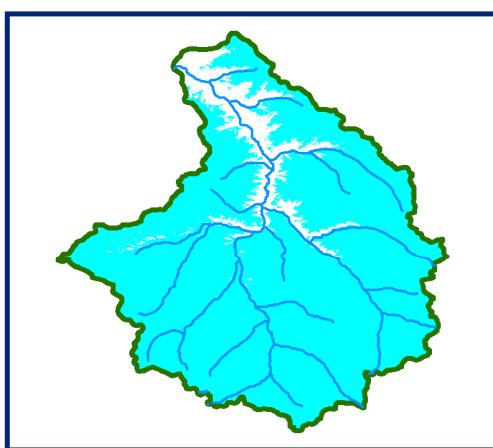
## ASTOR BASIN



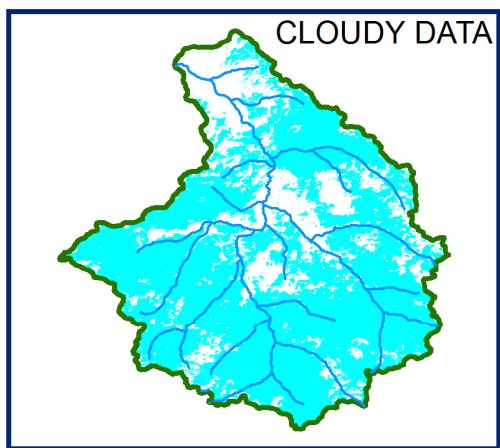
05 MARCH 2010



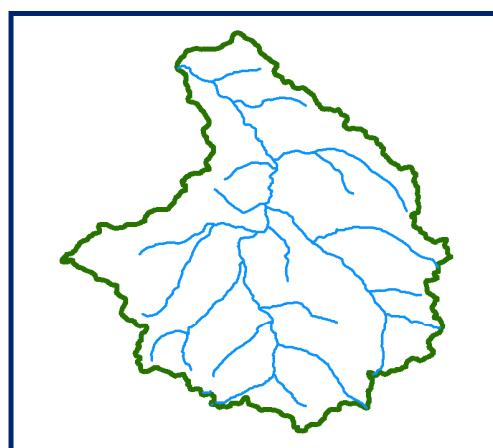
15 MARCH 2010



20 MARCH 2010



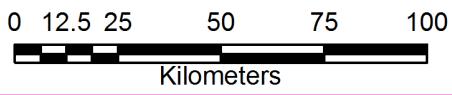
24 MARCH 2010



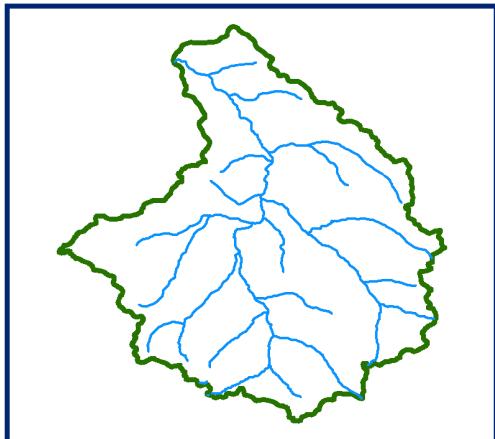
DATA NOT AVAILABLE



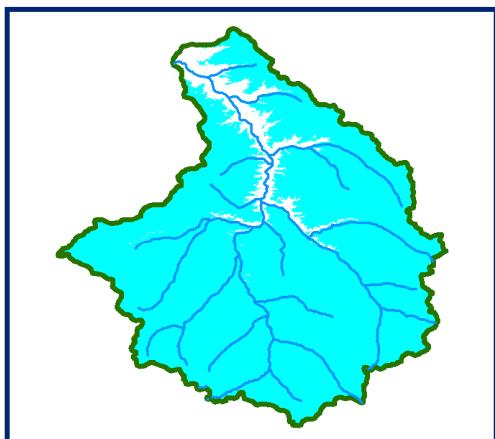
SNOW



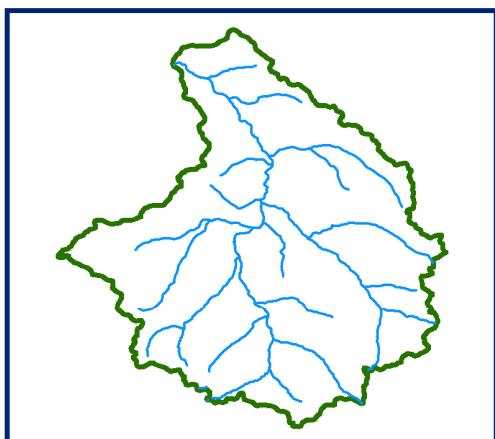
## 10 DAILY SNOW COVER MAP: ASTOR BASIN



**DATA NOT AVAILABLE**



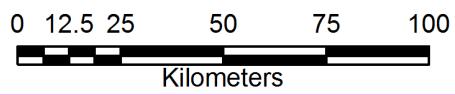
**DATA USED  
20 MARCH 2010**



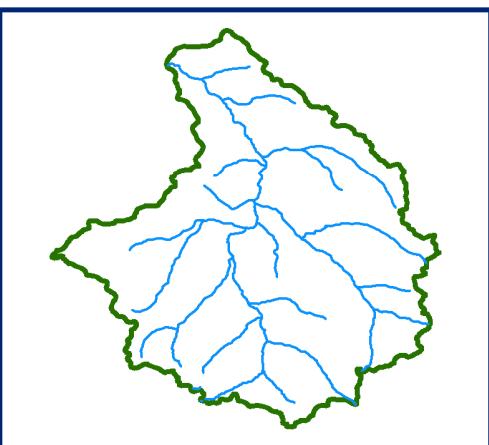
**DATA NOT AVAILABLE**



**SNOW**

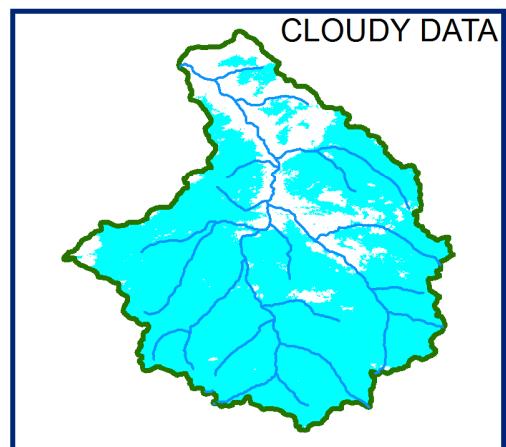


## SNOW COVER MAP:

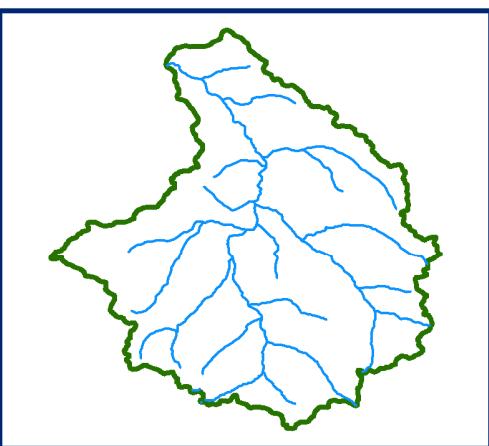


DATA NOT AVAILABLE

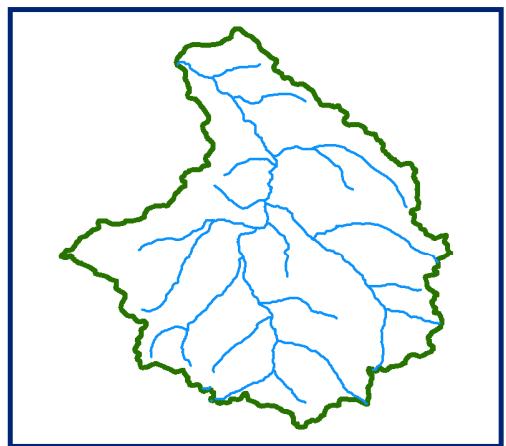
## ASTOR BASIN



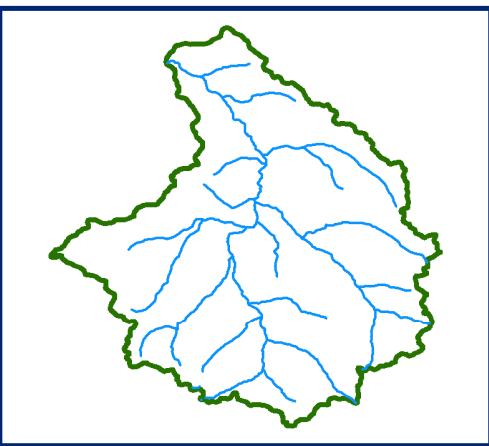
08 APRIL 2010



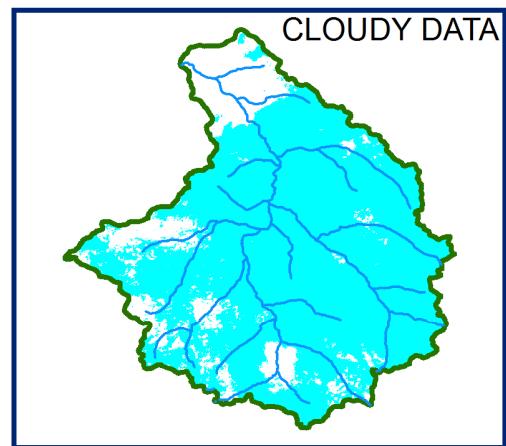
DATA NOT AVAILABLE



DATA NOT AVAILABLE



DATA NOT AVAILABLE



27 APRIL 2010

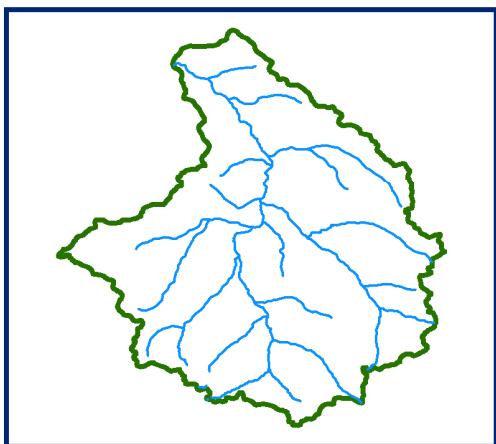


SNOW

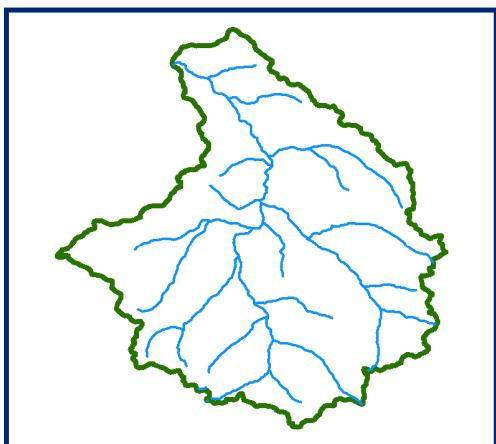
0 12.5 25 50 75 100

Kilometers

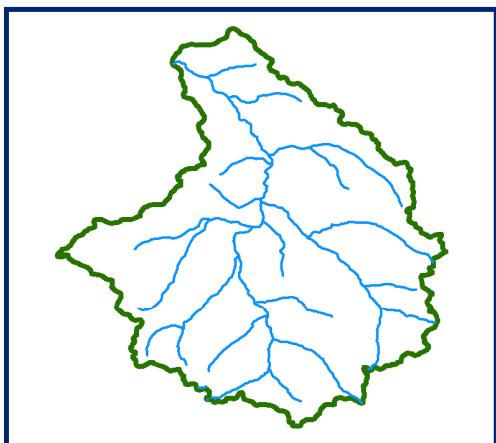
## 10 DAILY SNOW COVER MAP: ASTOR BASIN



DATA NOT AVAILABLE



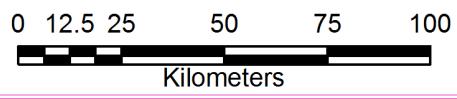
DATA NOT AVAILABLE



DATA NOT AVAILABLE

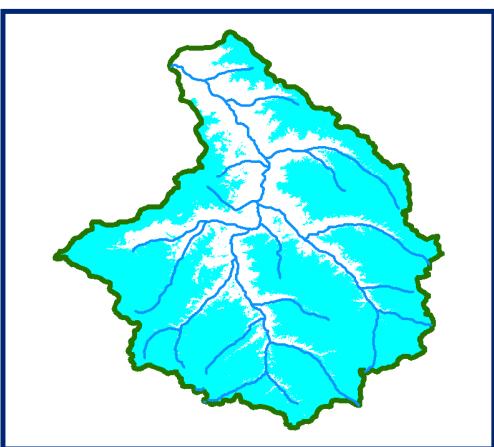


SNOW

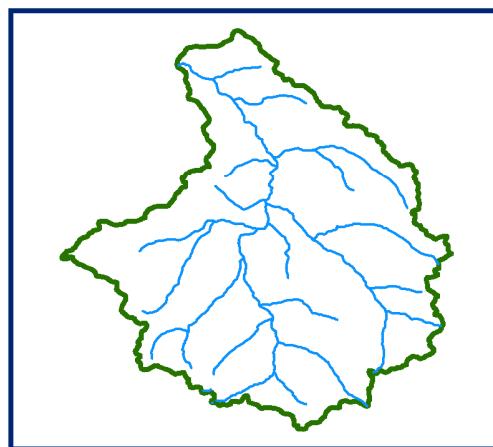


## SNOW COVER MAP:

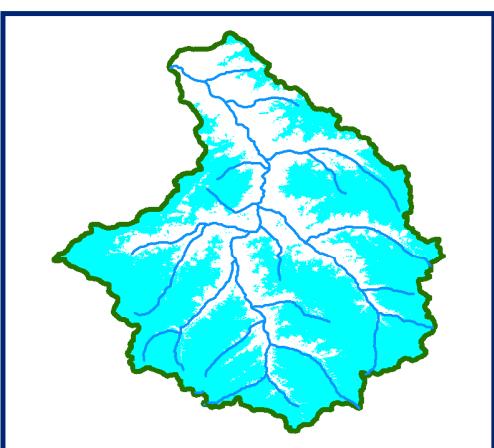
## ASTOR BASIN



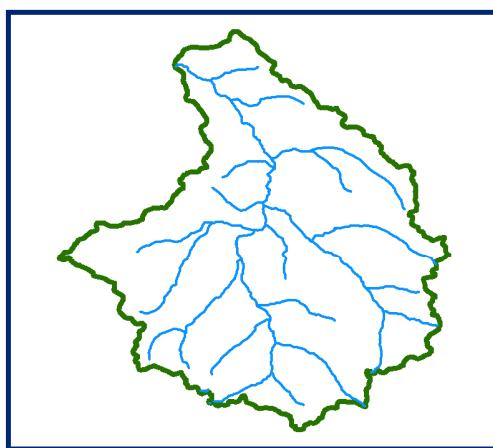
02 MAY 2010



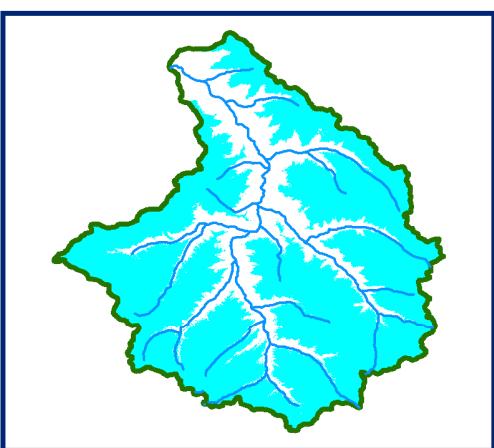
DATA NOT AVAILABLE



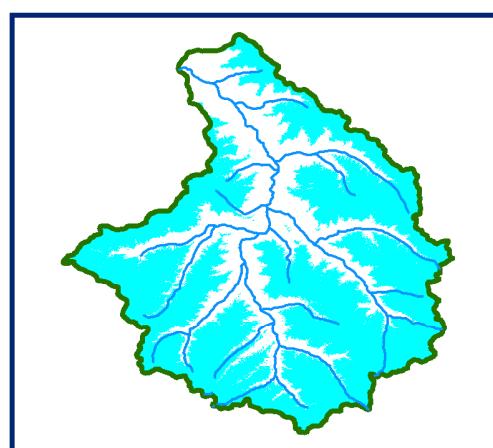
11 MAY 2010



DATA NOT AVAILABLE



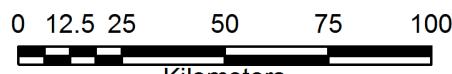
21 MAY 2010



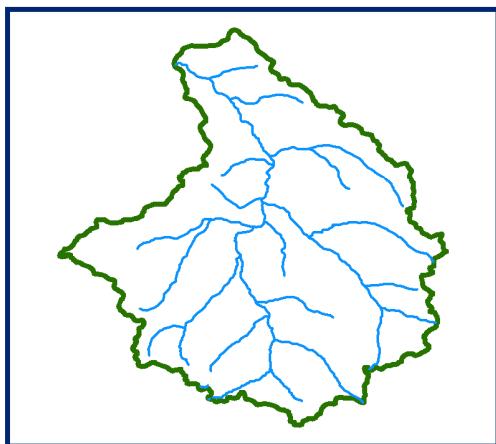
31 MAY 2010



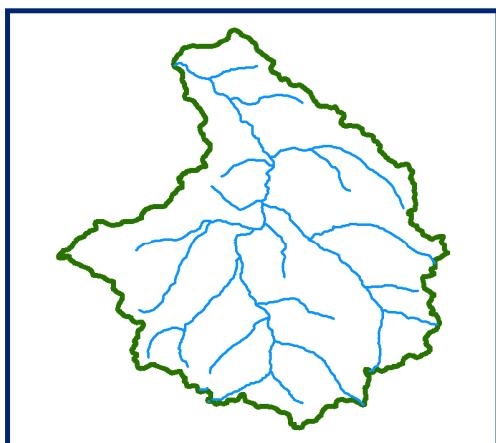
SNOW



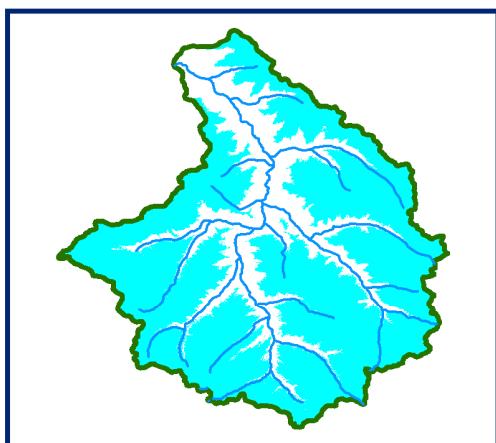
## 10 DAILY SNOW COVER MAP: ASTOR BASIN



**DATA NOT AVAILABLE**



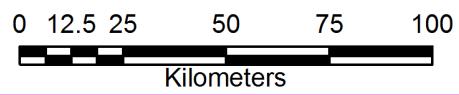
**DATA NOT AVAILABLE**



**DATA USED  
21 MAY 2010**

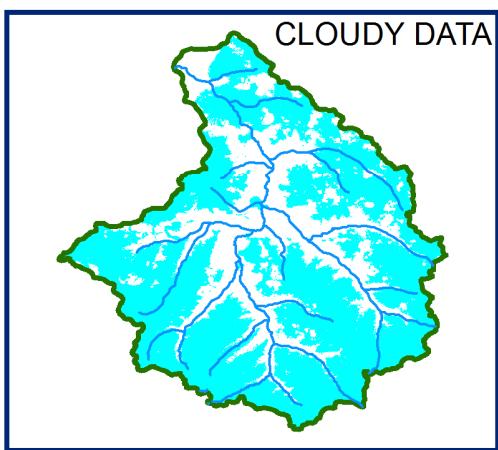
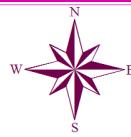


**SNOW**

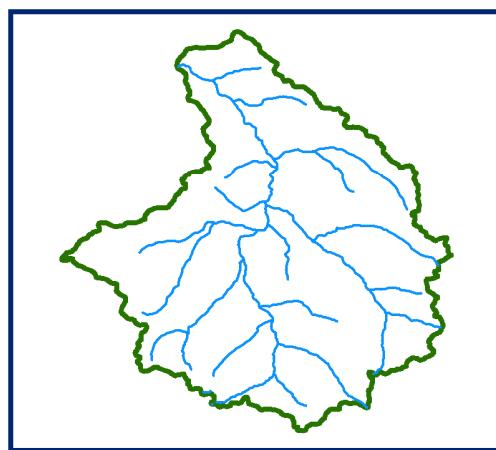


## SNOW COVER MAP:

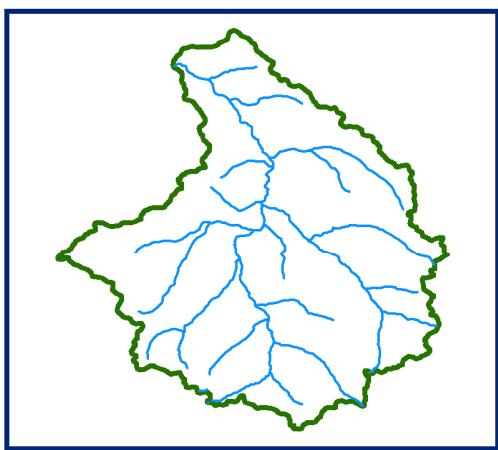
## ASTOR BASIN



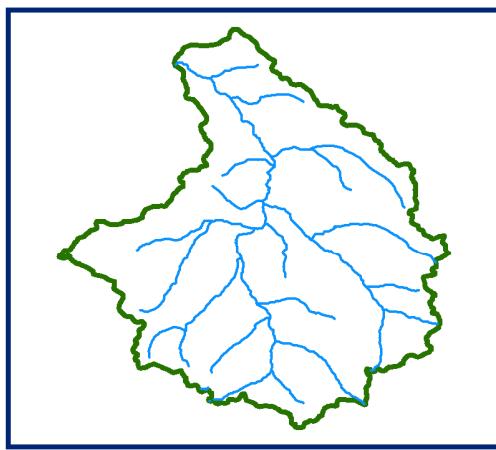
05 JUNE 2010



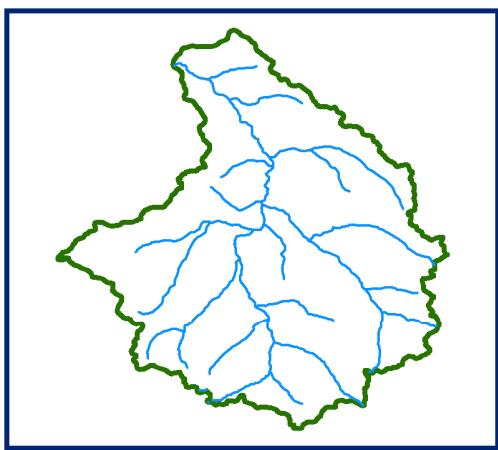
DATA NOT AVAILABLE



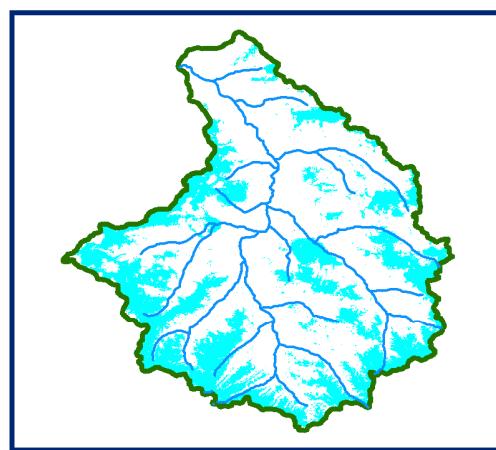
DATA NOT AVAILABLE



DATA NOT AVAILABLE



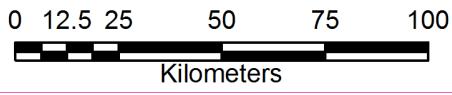
DATA NOT AVAILABLE



28 JUNE 2010

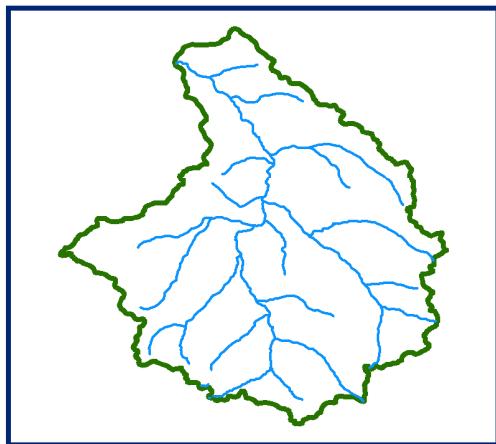


SNOW

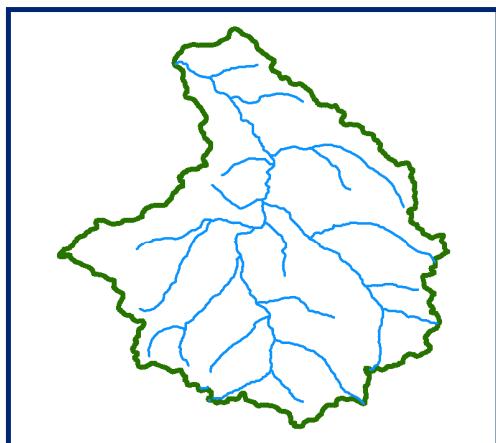


Kilometers

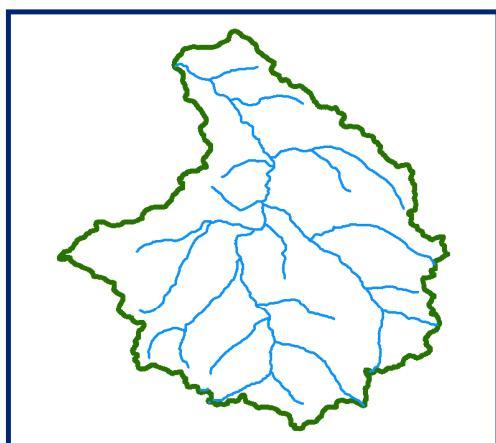
## 10 DAILY SNOW COVER MAP: ASTOR BASIN



DATA NOT AVAILABLE



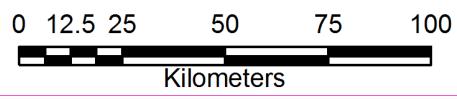
DATA NOT AVAILABLE



DATA NOT AVAILABLE



SNOW



Kilometers

### AREAL EXTENT OF SNOW (5 DAILY)

**BASIN NAME: SHIGO**

**BASIN AREA: 5539 sq km**

S No	Date	Snow cover (sq km)	Snow cover (%)	S No	Date	Snow cover (sq km)	Snow cover (%)
<b>October 2009</b>							
1	03-oct-09	40	1	4	17-oct-09	626	11
2	08-oct-09	2131	38	5	18-oct-09	1377	25
3	12-oct-09	389	7	6	27-oct-09	553	10
<b>November 2009</b>							
1	01-nov-09	2006	36	5	15-nov-09	4544	82
2	06-nov-09	1106	20	6	20-nov-09	5388	97
3	10-nov-09	4996	90	7	25-nov-09	4905	89
4	11-nov-09	5106	92				
<b>December 2009</b>							
1	04-dec-09	4543	82	5	24-Dec-09	5203	94
2	14-dec-09	5169	93	6	28-Dec-09	4547	82
3	19-Dec-09	5259	95	7	29-Dec-09	5141	93
4	23-Dec-09	4560	82				
<b>January 2010</b>							
1	2-Jan-10	5152	93	4	26-Jan-10	4879	88
2	7-Jan-10	5258	95	5	31-Jan-10	5503	99
3	21-Jan-10	4780	86				
<b>February 2010</b>							
1	5-Feb-10	5428	98	2	10-Feb-10	5538	100
<b>March 2010</b>							
1	5-Mar-10	5383	97	3	20-Mar-10	5187	94
2	11-Mar-10	5424	98				
<b>APRIL 2010</b>							
1	8-Apr-10	4562	82	2	27-Apr-10	2953	53
<b>MAY 2010</b>							
1	2-May-10	4000	72	4	31-May-10	4092	74
2	21-May-10	4533	82	5	22-May-10	3817	69
3	26-May-10	4002	72				
<b>JUNE 2010</b>							
1	5-Jun-10	3466	63	2	29-Jun-10	2327	42

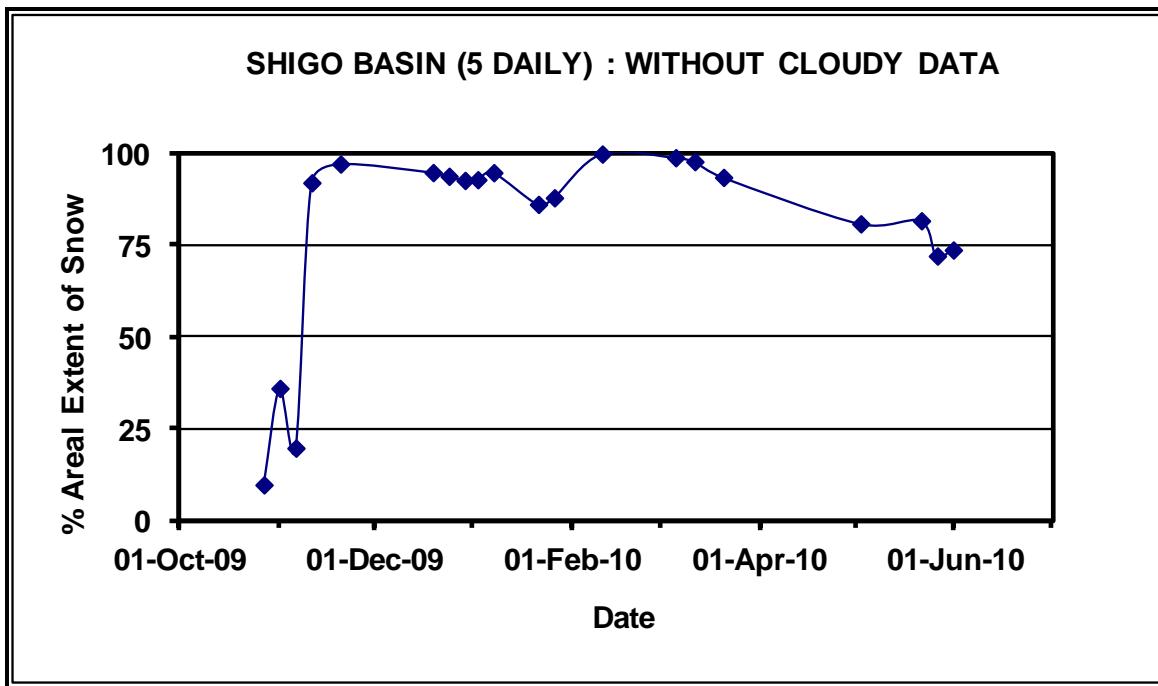
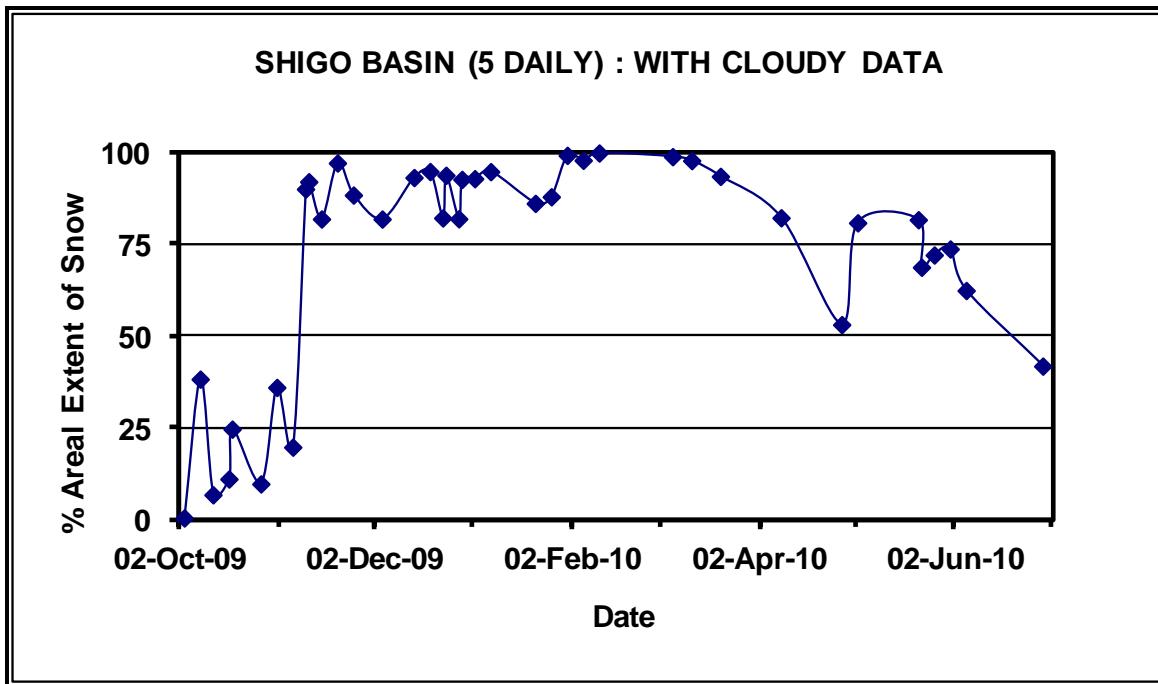
**AREAL EXTENT OF SNOW (10 DAILY)**

**BASIN NAME: SHIGO**

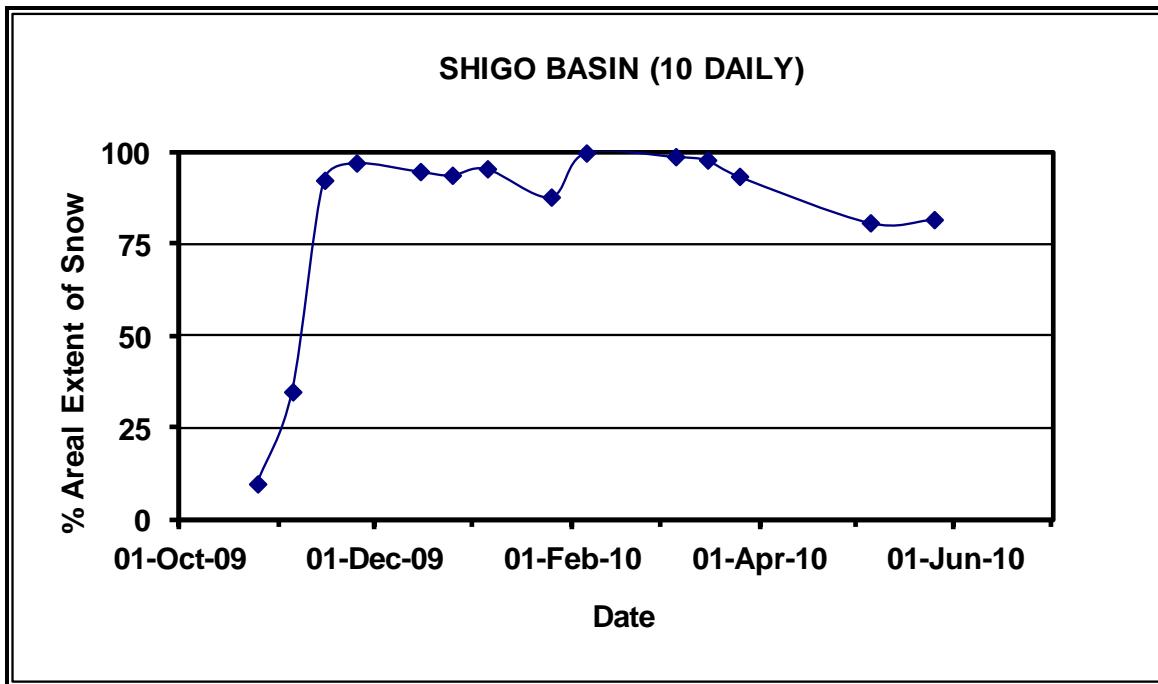
**BASIN AREA: 5539 sq km**

S No	Date	Snow cover (sq km)	Snow cover (%)	S No	Date	Snow cover (sq km)	Snow cover (%)
<b>October 2009</b>							
1	25-oct-09	553	10				
<b>November 2009</b>							
2	05-nov-09	1939	35	4	25-nov-09	5373	97
3	15-nov-09	5151	93				
<b>December 2009</b>							
5	15-Dec-09	5259	95	6	25-Dec-09	5203	94
<b>January 2010</b>							
7	5-Jan-10	5301	96	8	25-Jan-10	4874	88
<b>February 2010</b>							
9	5-Feb-10	5538	100				
<b>March 2010</b>							
10	5-Mar-10	5484	99	12	25-Mar-10	5207	94
11	15-Mar-10	5428	98				
<b>May 2010</b>							
13	5-May-10	4487	81	14	25-May-10	4535	82

### Snow cover depletion curve



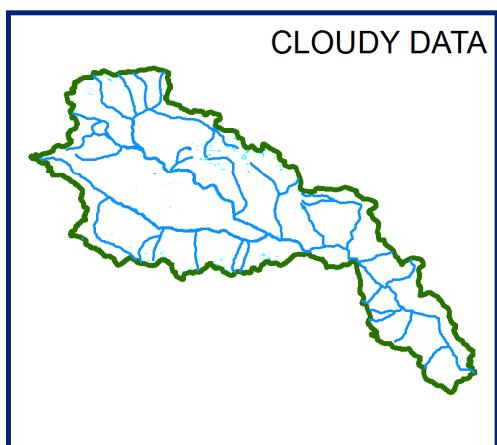
### Snow cover depletion curve



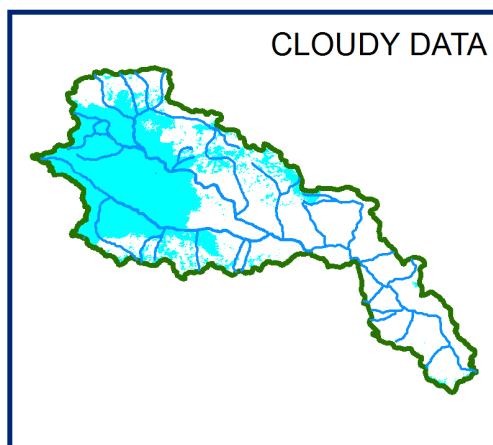
# *SNOW COVER MAP*

## SNOW COVER MAP:

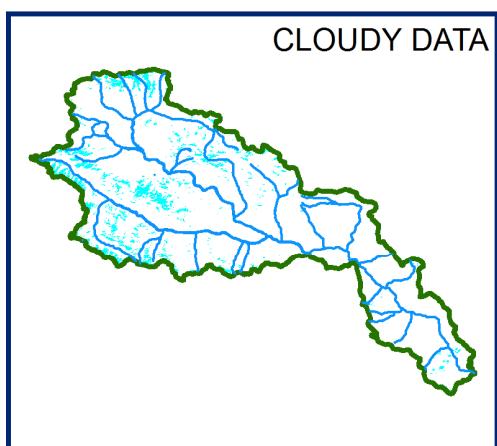
## SHIGO BASIN



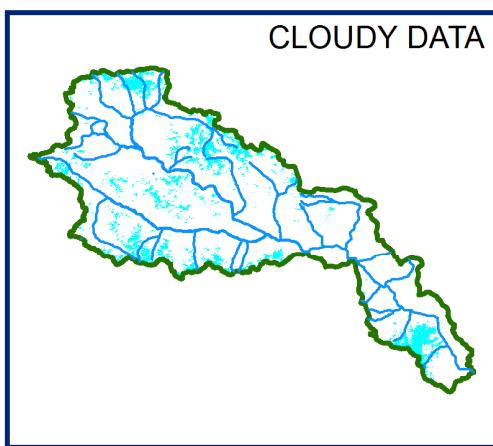
03 OCTOBER 2009



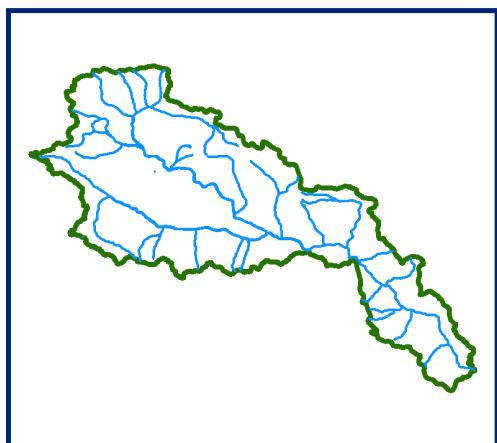
08 OCTOBER 2009



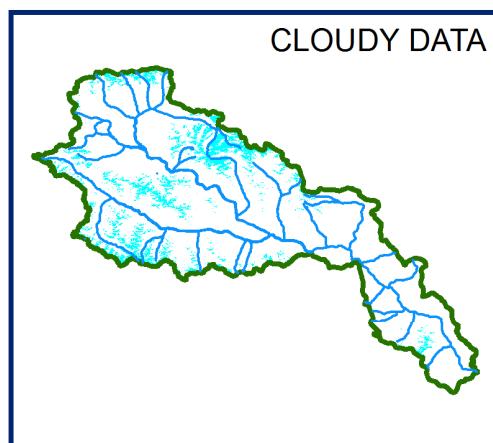
12 OCTOBER 2009



17 OCTOBER 2009



DATA NOT AVAILABLE



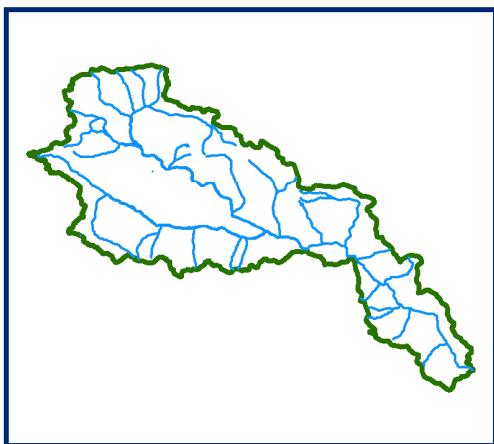
27 OCTOBER 2009



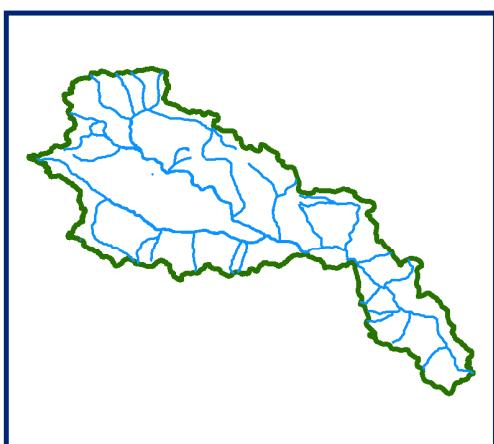
SNOW



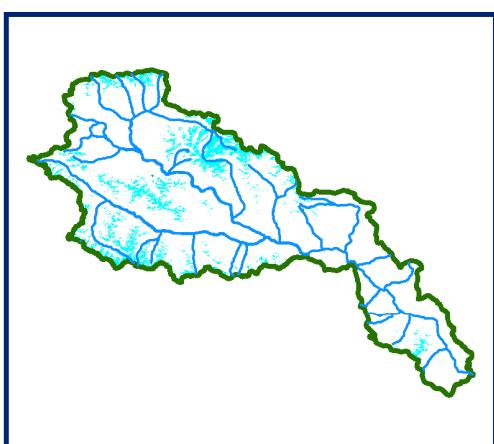
## 10 DAILY SNOW COVER MAP: SHIGO BASIN



DATA NOT AVAILABLE



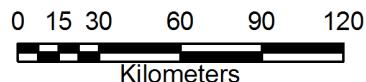
DATA NOT AVAILABLE



DATA USED  
**27 OCTOBER 2009**

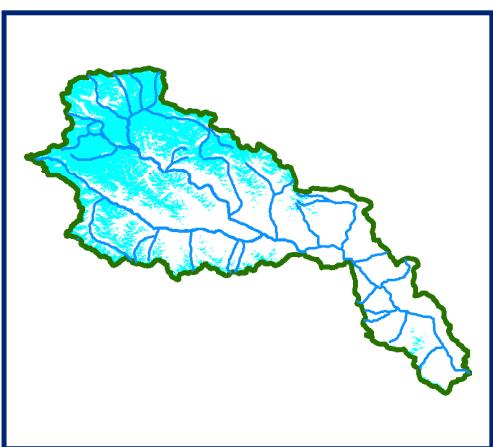


SNOW

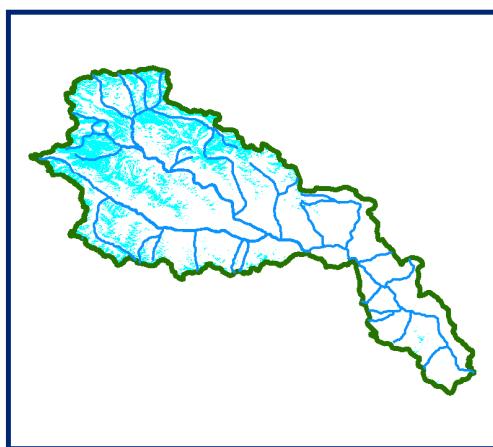


**SNOW COVER MAP:**

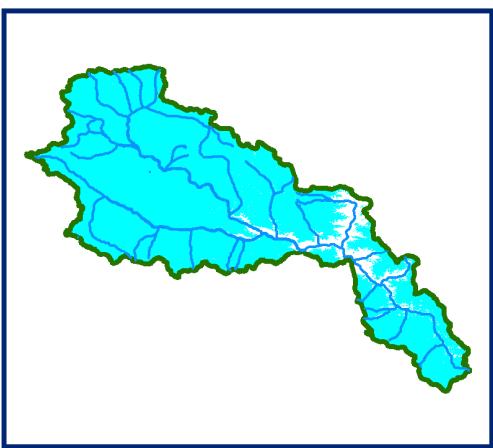
**SHIGO BASIN**



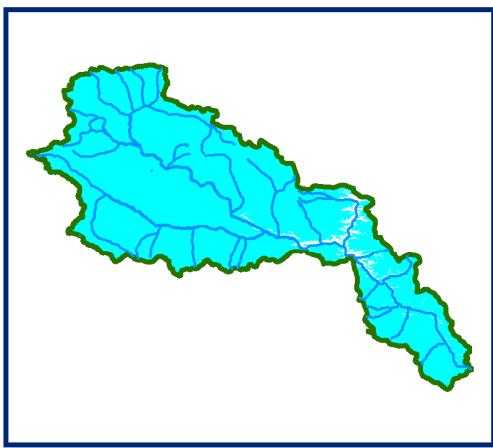
**01 NOVEMBER 2009**



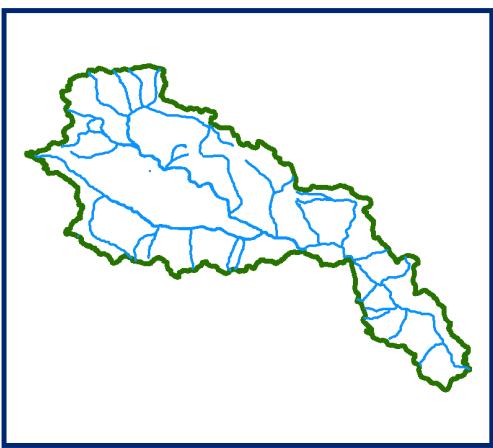
**06 NOVEMBER 2009**



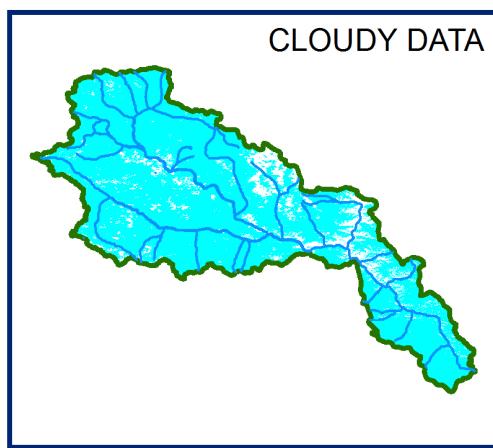
**11 NOVEMBER 2009**



**20 NOVEMBER 2009**



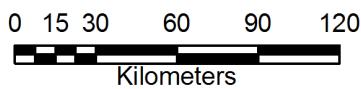
**DATA NOT AVAILABLE**



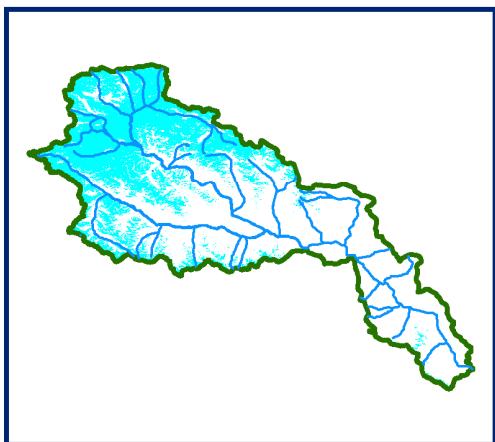
**25 NOVEMBER 2009**



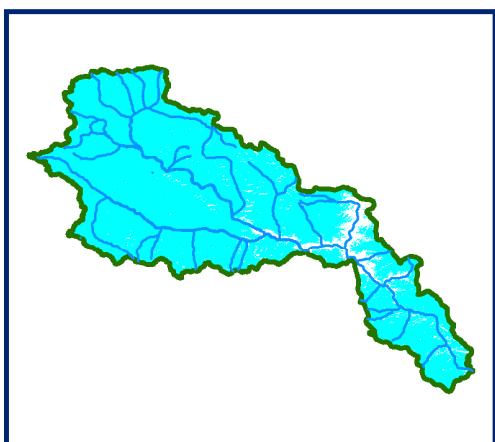
**SNOW**



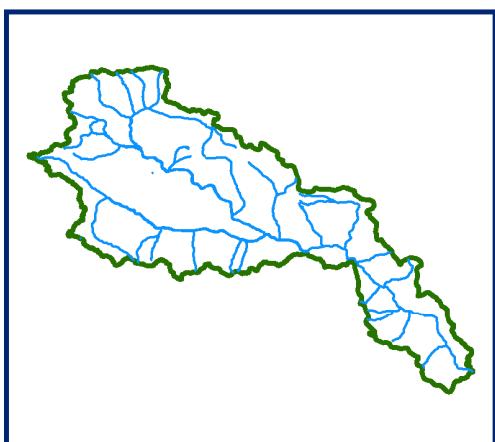
## 10 DAILY SNOW COVER MAP: SHIGO BASIN



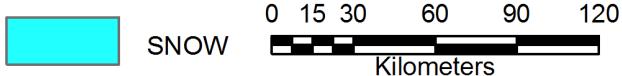
DATA USED  
01 NOVEMBER 2009



DATA USED  
11 NOVEMBER 2009



DATA NOT AVAILABLE

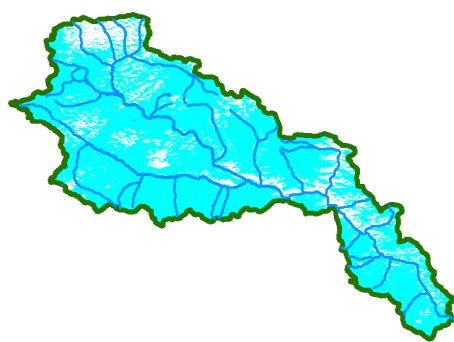


## SNOW COVER MAP:

## SHIGO BASIN



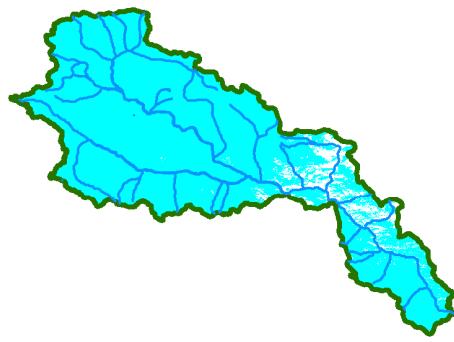
CLOUDY DATA



04 DECEMBER 2009

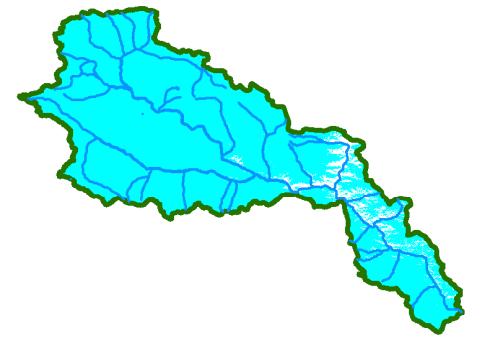
DATA NOT AVAILABLE

CLOUDY DATA

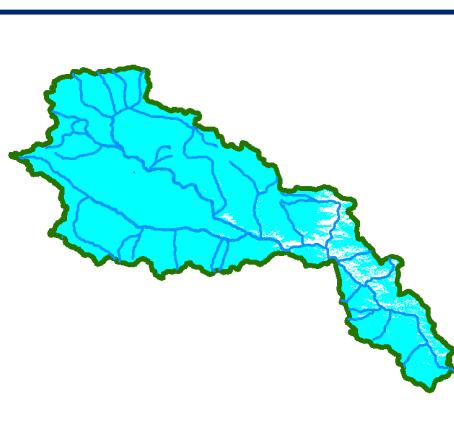


14 DECEMBER 2009

CLOUDY DATA

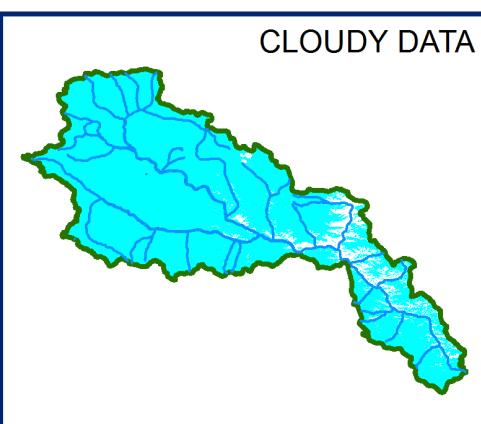


19 DECEMBER 2009



24 DECEMBER 2009

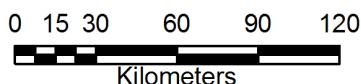
CLOUDY DATA



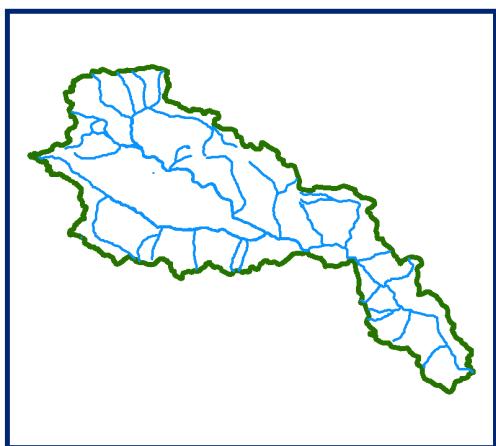
29 DECEMBER 2009



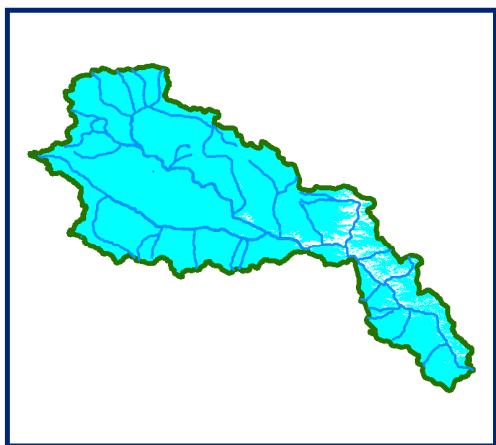
SNOW



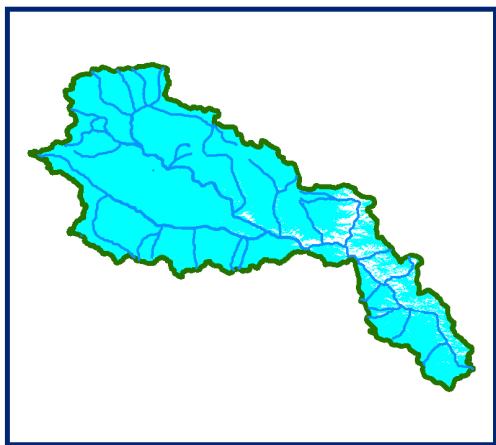
## 10 DAILY SNOW COVER MAP: SHIGO BASIN



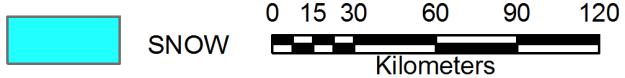
DATA NOT AVAILABLE



DATA USED  
19 DECEMBER 2009

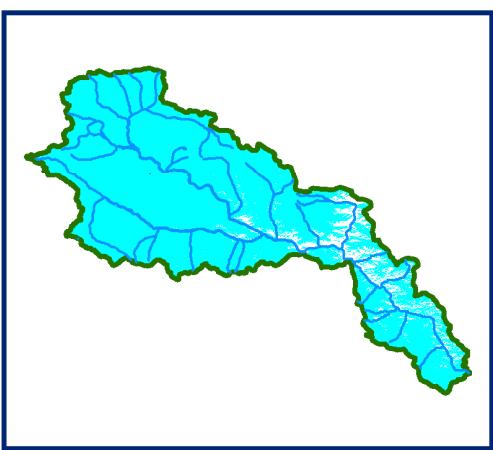


DATA USED  
24 DECEMBER 2009

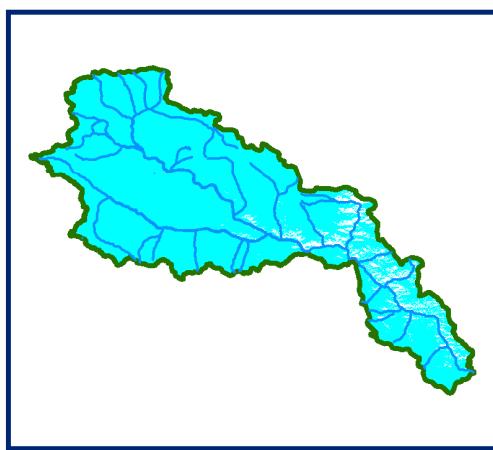


**SNOW COVER MAP:**

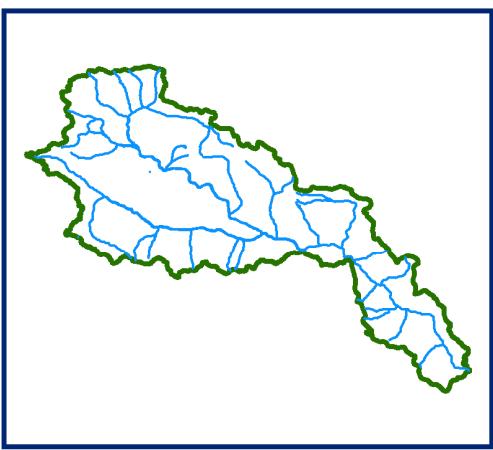
**SHIGO BASIN**



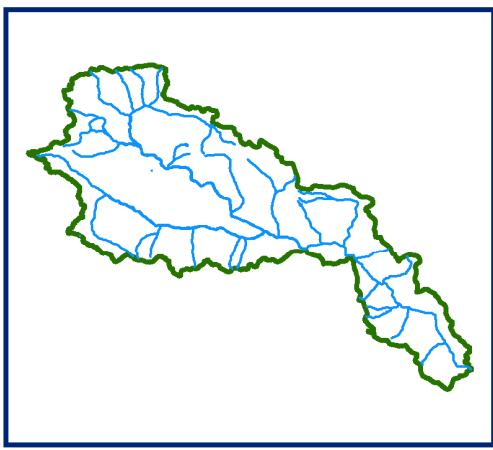
**02 JANUARY 2010**



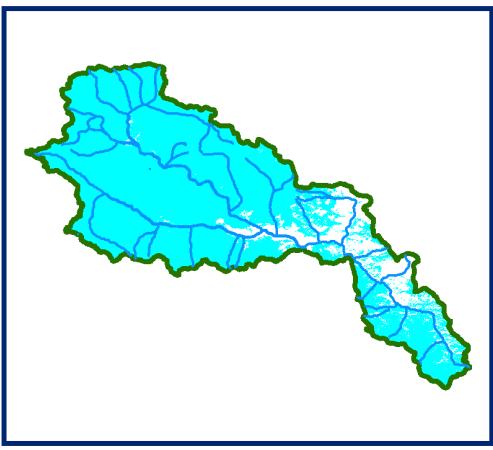
**07 JANUARY 2010**



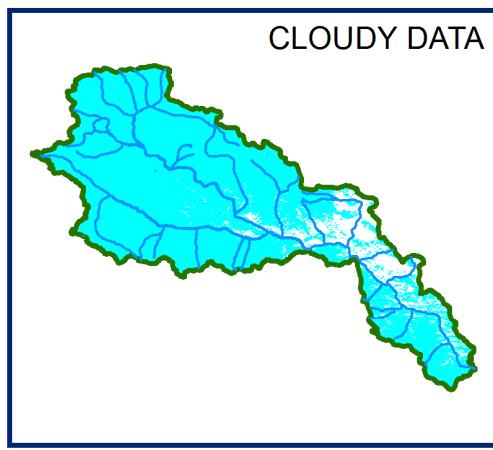
**DATA NOT AVAILABLE**



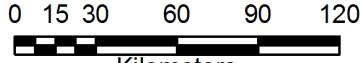
**CLOUDY DATA**



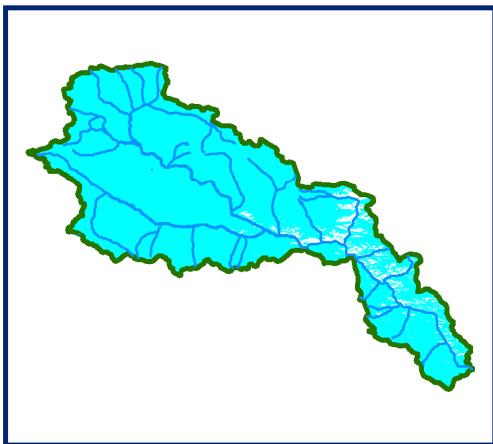
**21 JANUARY 2009**



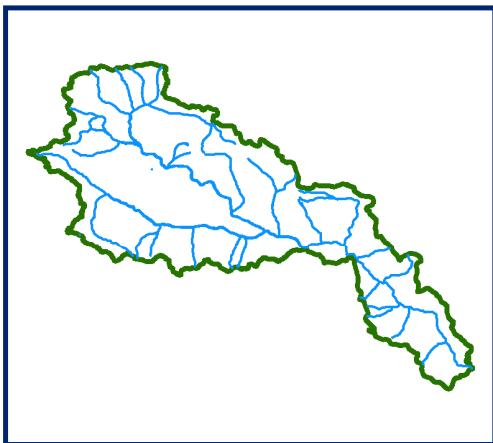
**26 JANUARY 2009**



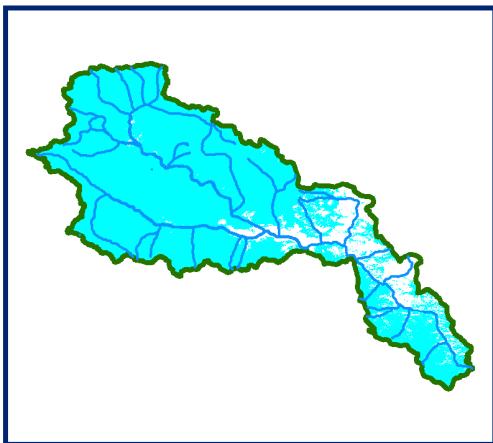
# 10 DAILY SNOW COVER MAP: SHIGO BASIN



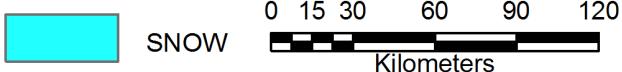
DATA USED  
**02 JANUARY 2010**



**DATA NOT AVAILABLE**

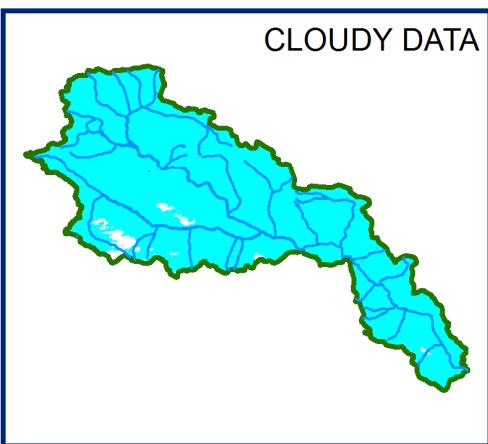


DATA USED  
**21 JANUARY 2010**

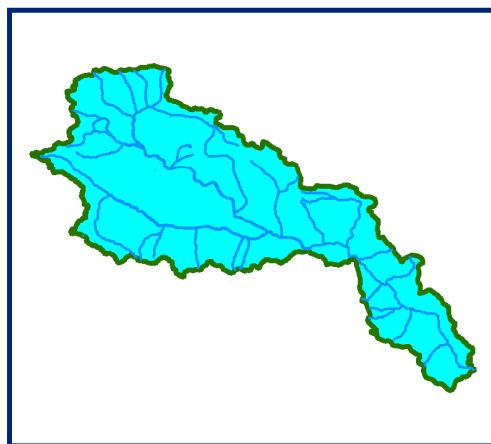


**SNOW COVER MAP:**

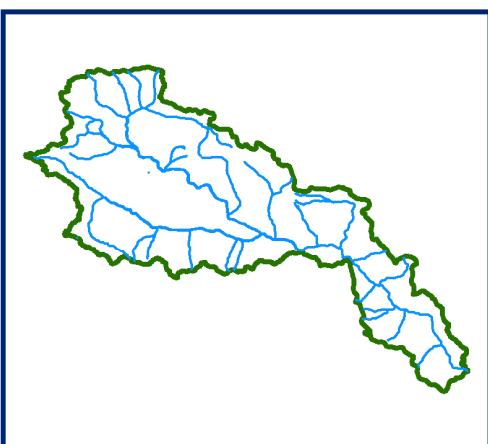
**SHIGO BASIN**



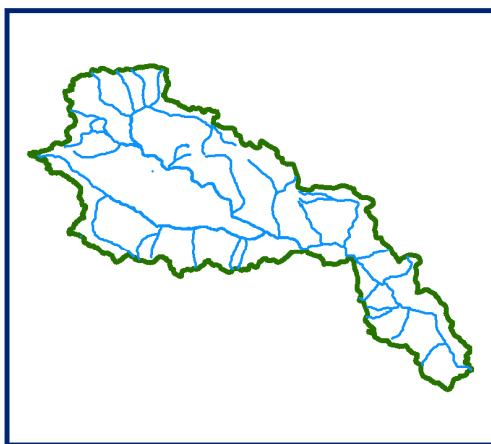
**05 FEBRUARY 2010**



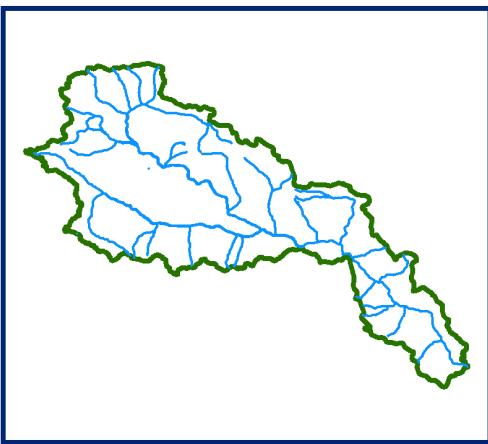
**10 FEBRUARY 2010**



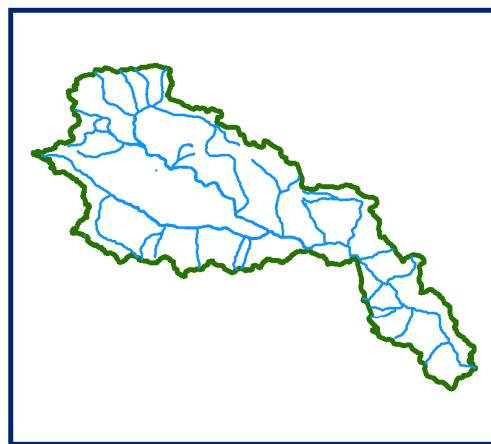
**DATA NOT AVAILABLE**



**DATA NOT AVAILABLE**



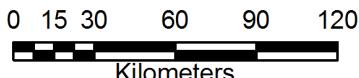
**DATA NOT AVAILABLE**



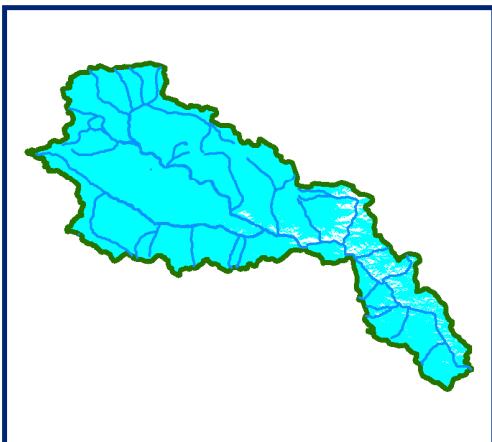
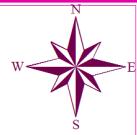
**DATA NOT AVAILABLE**



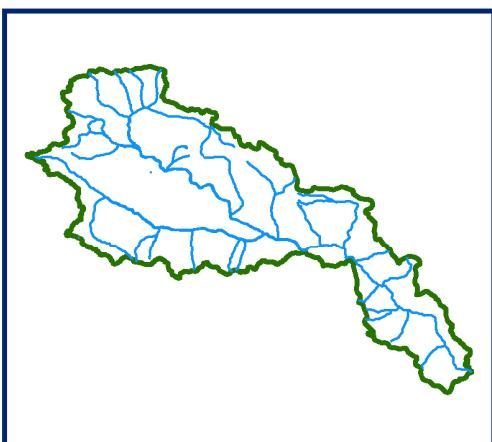
**SNOW**



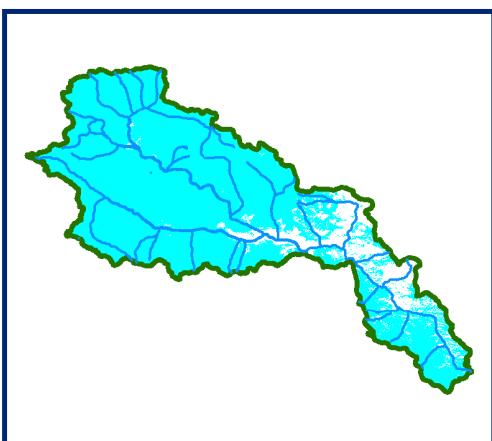
## 10 DAILY SNOW COVER MAP: SHIGO BASIN



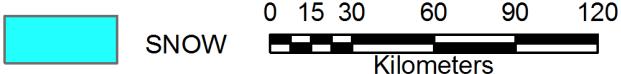
DATA USED  
**02 JANUARY 2010**



**DATA NOT AVAILABLE**

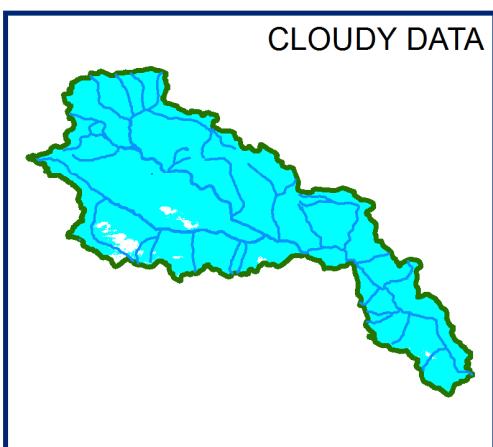


DATA USED  
**21 JANUARY 2010**

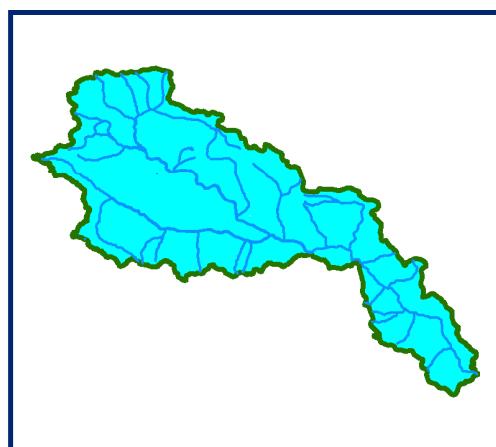


## SNOW COVER MAP:

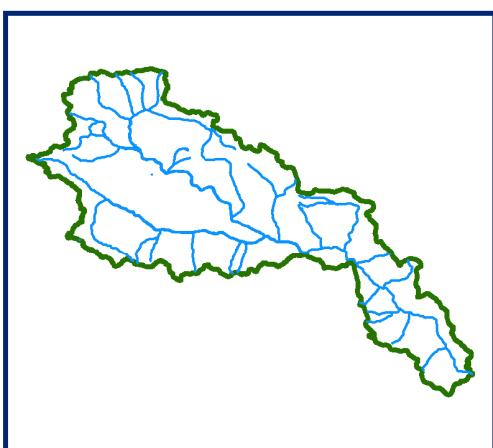
## SHIGO BASIN



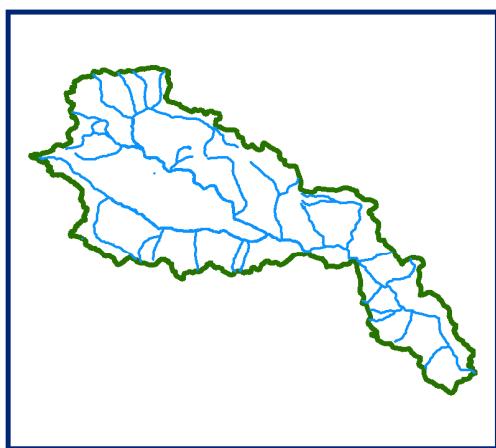
05 FEBRUARY 2010



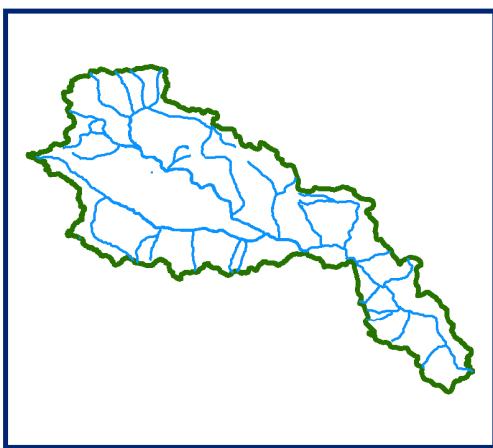
10 FEBRUARY 2010



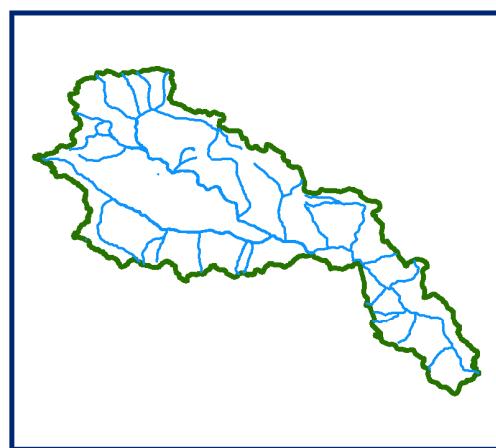
DATA NOT AVAILABLE



DATA NOT AVAILABLE



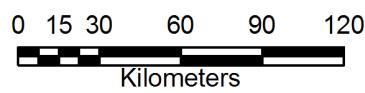
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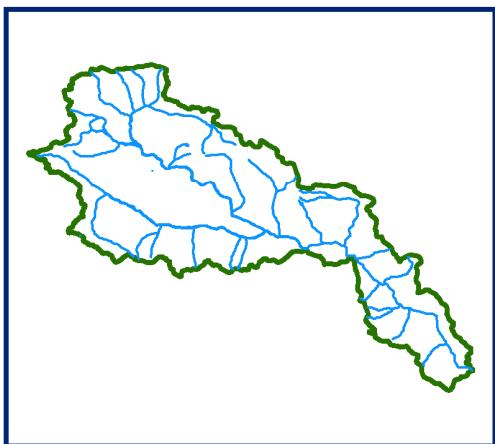
DATA NOT AVAILABLE



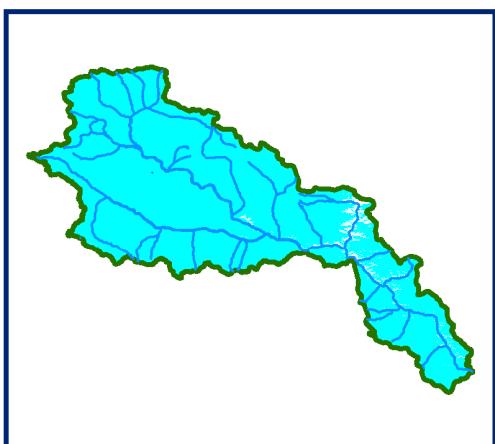
SNOW



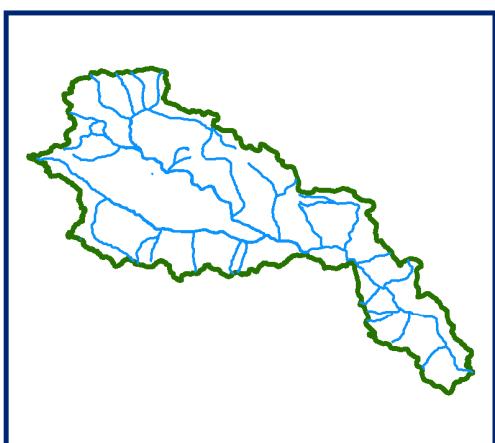
## 10 DAILY SNOW COVER MAP: SHIGO BASIN



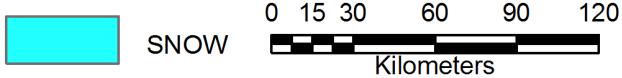
**DATA NOT AVAILABLE**



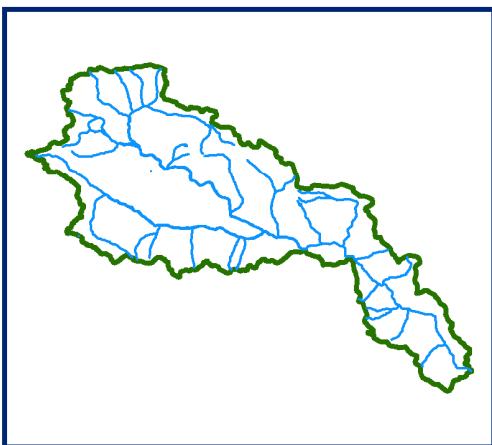
**DATA USED  
11 MARCH 2010**



**DATA NOT AVAILABLE**



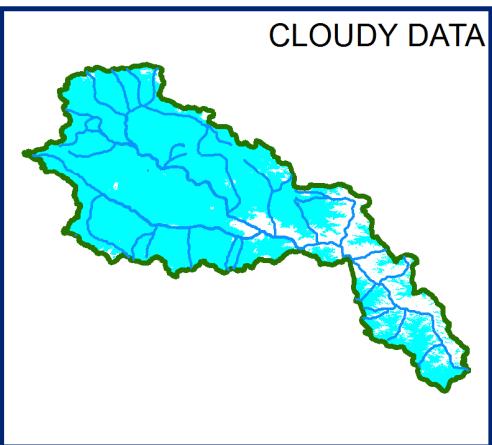
**SNOW COVER MAP:**



**SHIGO BASIN**

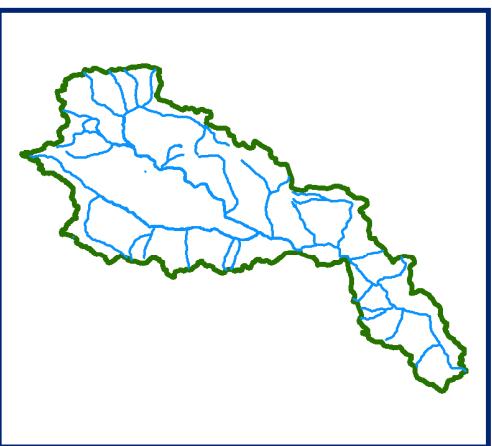
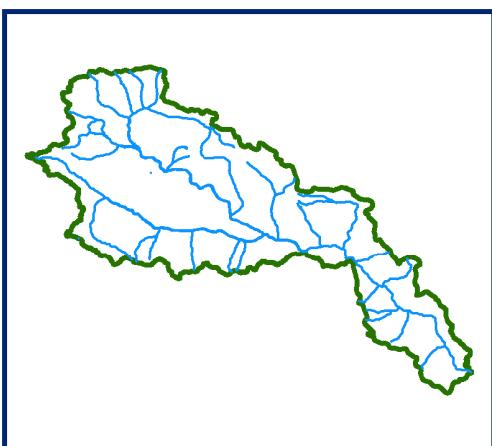


CLOUDY DATA



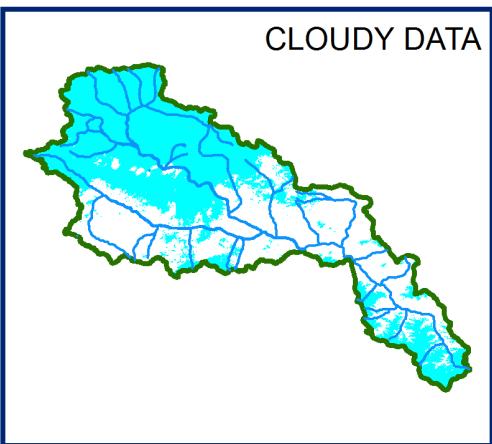
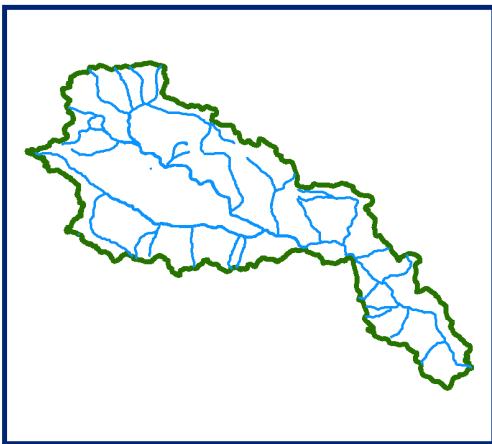
**DATA NOT AVAILABLE**

**08 APRIL 2010**



**DATA NOT AVAILABLE**

**DATA NOT AVAILABLE**

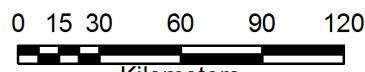


**DATA NOT AVAILABLE**

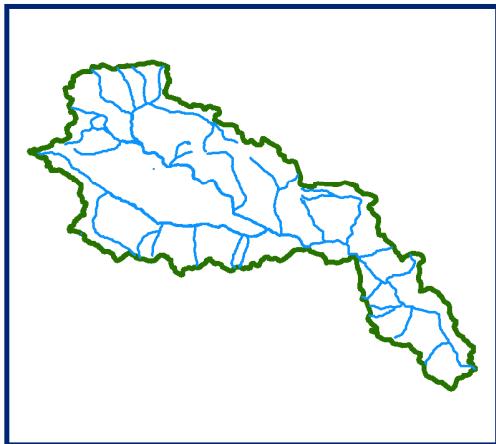
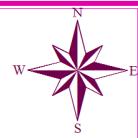
**27 APRIL 2010**



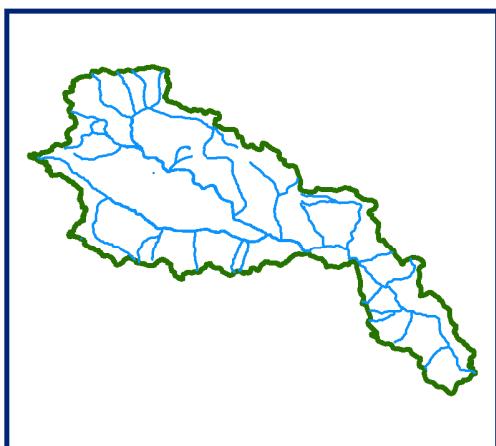
**SNOW**



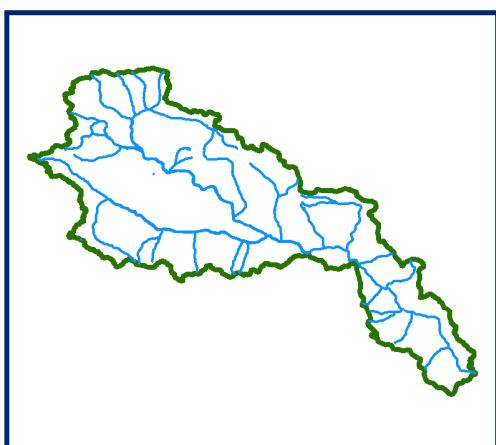
## 10 DAILY SNOW COVER MAP: SHIGO BASIN



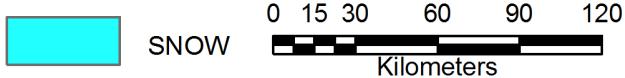
**DATA NOT AVAILABLE**



**DATA NOT AVAILABLE**

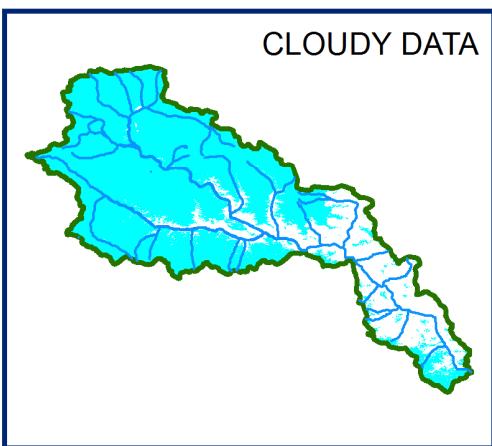
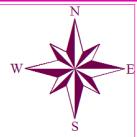


**DATA NOT AVAILABLE**

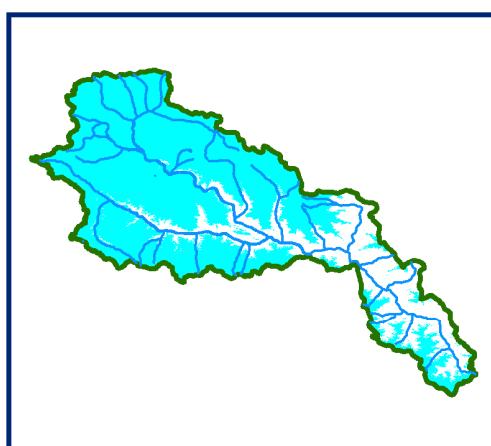
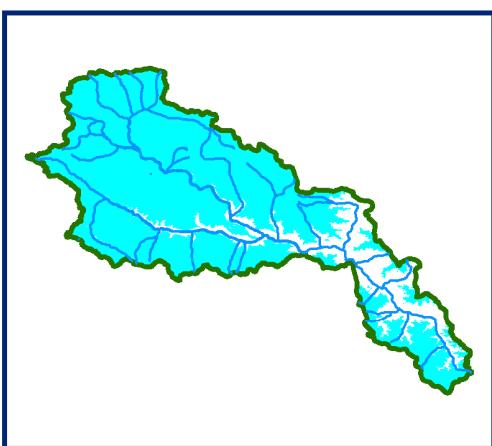
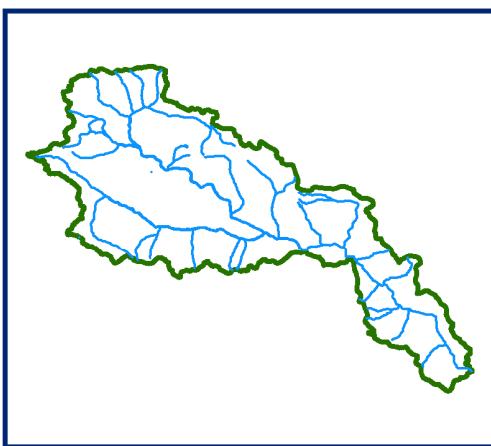
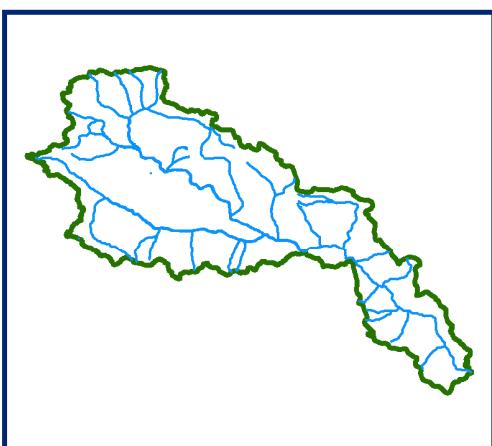
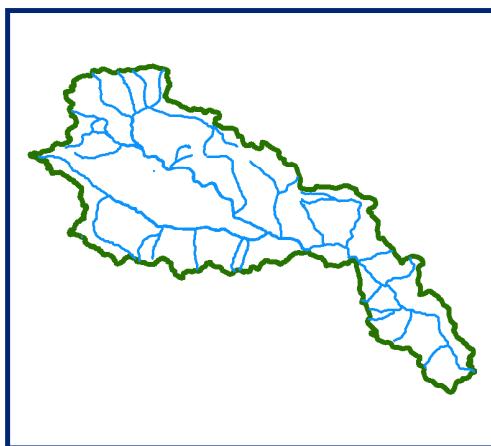


## SNOW COVER MAP:

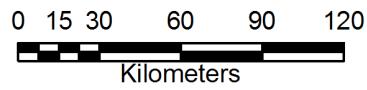
## SHIGO BASIN



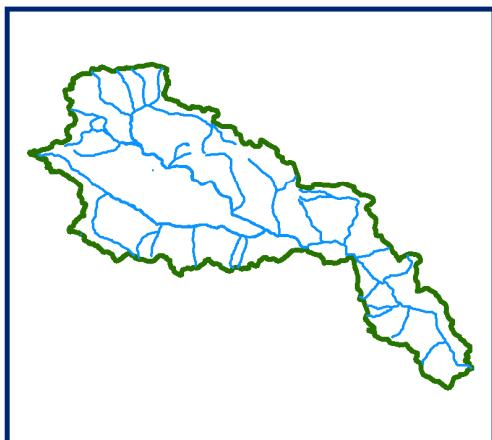
02 MAY 2010



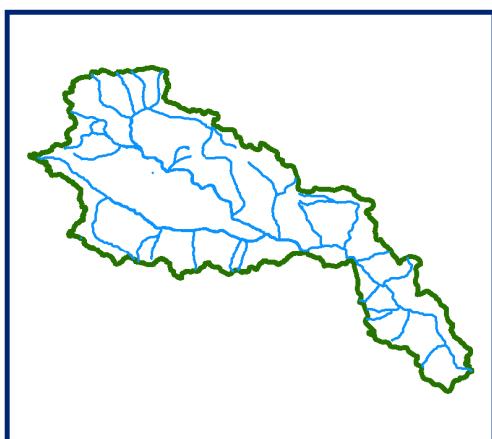
SNOW



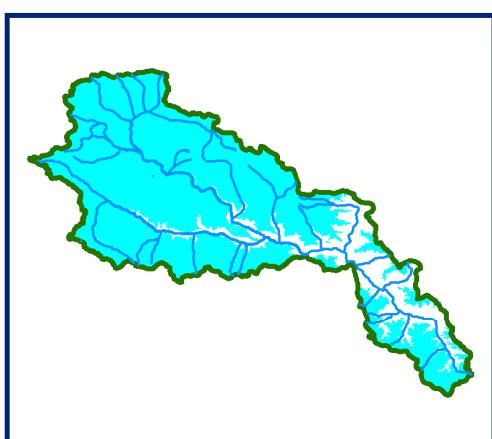
## 10 DAILY SNOW COVER MAP: SHIGO BASIN



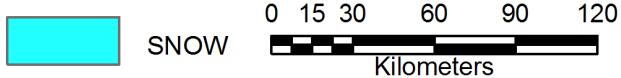
DATA NOT AVAILABLE



DATA NOT AVAILABLE

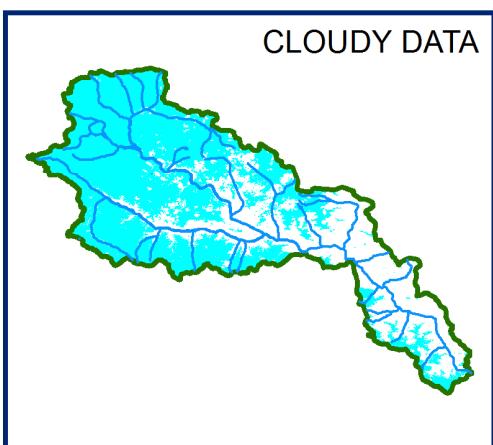


DATA USED  
**21 MAY 2010**

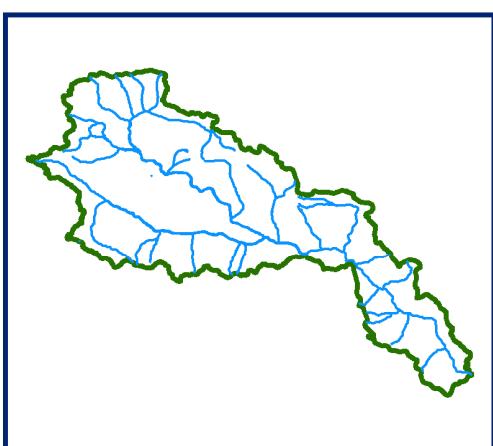
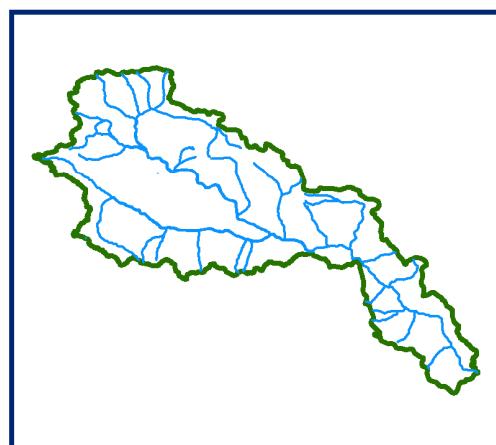


## SNOW COVER MAP:

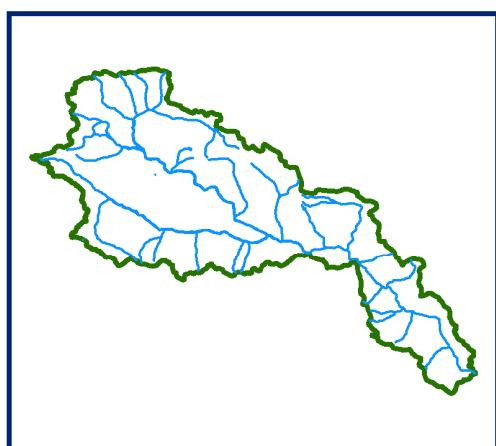
## SHIGO BASIN



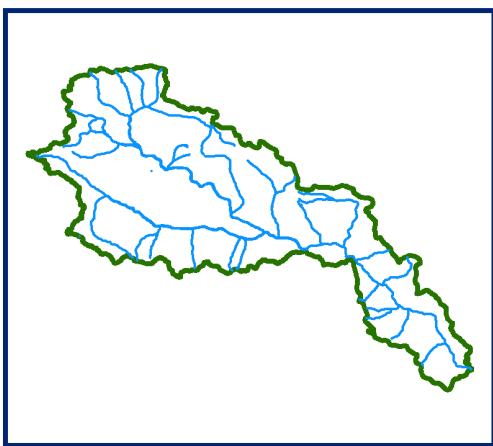
02 JUNE 2010



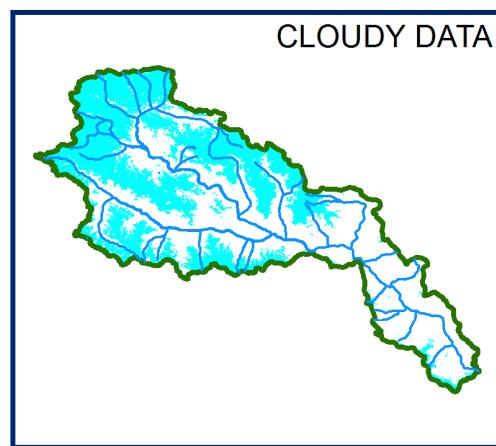
DATA NOT AVAILABLE



DATA NOT AVAILABLE



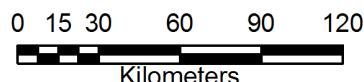
DATA NOT AVAILABLE



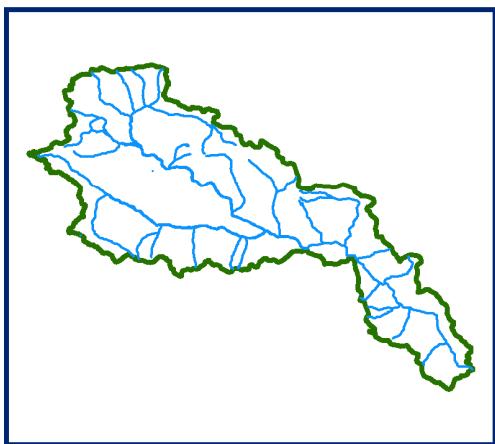
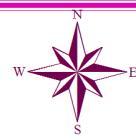
29 JUNE 2010



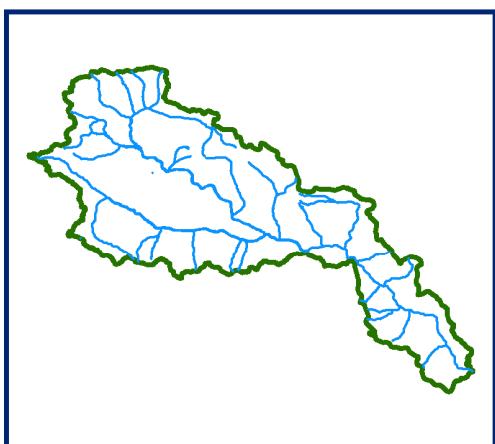
SNOW



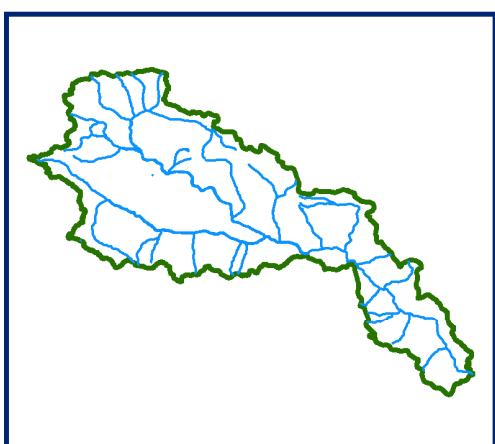
## 10 DAILY SNOW COVER MAP: SHIGO BASIN



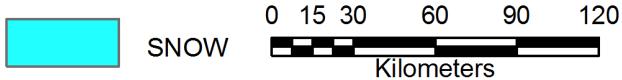
DATA NOT AVAILABLE



DATA NOT AVAILABLE



DATA NOT AVAILABLE



### AREAL EXTENT OF SNOW (5 DAILY)

**BASIN NAME: DRASS**

**BASIN AREA: 1683 sq km**

S No	Date	Snow cover (sq km)	Snow cover (%)	S No	Date	Snow cover (sq km)	Snow cover (%)
<b>October 2009</b>							
1	03-Oct-09	115	7	4	17-Oct-09	541	32
2	08-Oct-09	830	49	5	18-Oct-09	670	40
3	12-Oct-09	399	24	6	27-Oct-09	422	25
<b>November 2009</b>							
1	01-Nov-09	550	33	5	15-Nov-09	1574	94
2	06-Nov-09	406	24	6	20-Nov-09	1652	98
3	10-Nov-09	1369	81	7	25-Nov-09	1598	95
4	11-Nov-09	1632	97				
<b>December 2009</b>							
1	04-Dec-09	1615	96	4	23-Dec-09	1619	96
2	14-Dec-09	1627	97	5	24-Dec-09	1646	98
3	19-Dec-09	1649	98	6	29-Dec-09	1642	98
<b>January 2010</b>							
1	02-Jan-10	1637	97	4	26-Jan-10	1620	96
2	07-Jan-10	1647	98	5	31-Jan-10	1658	98
3	21-Jan-10	1270	75				
<b>February 2010</b>							
1	05-Feb-10	1529	91	2	10-Feb-10	1658	99
<b>MARCH 2010</b>							
1	05-Mar-10	1655	98	3	20-Mar-10	1646	98
2	11-Mar-10	1657	98				
<b>APRIL 2010</b>							
1	08-Apr-10	1535	91	2	27-Apr-10	773	46
<b>MAY 2010</b>							
1	02-May-10	1309	78	4	26-May-10	1276	76
2	21-May-10	1418	84	5	31-May-10	1346	80
3	22-May-10	1265	75				
<b>JUNE 2010</b>							
1	05-Jun-10	1072	64	2	29-Jun-10	508	30

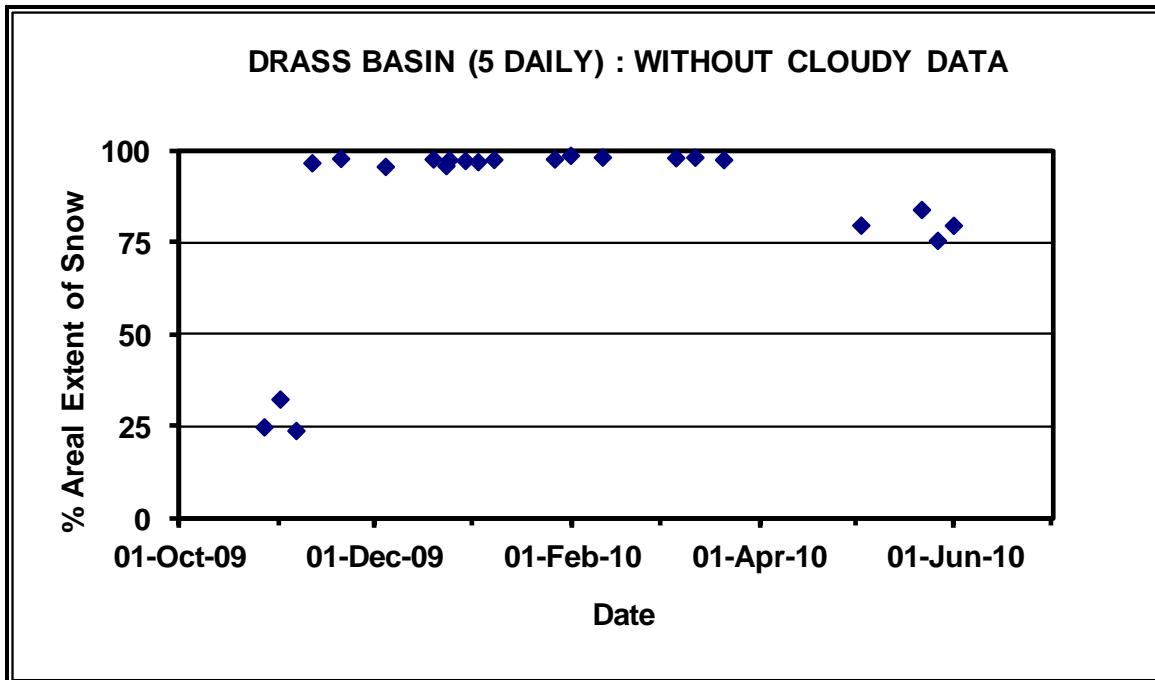
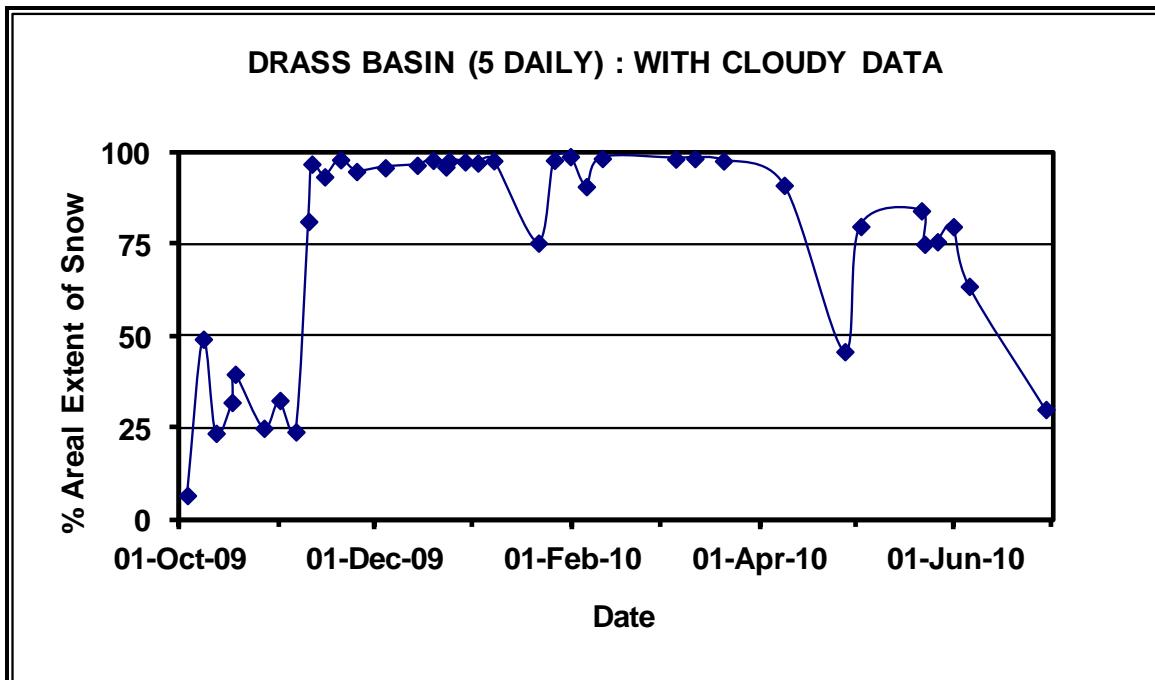
**AREAL EXTENT OF SNOW (10 DAILY)**

**BASIN NAME: DRASS**

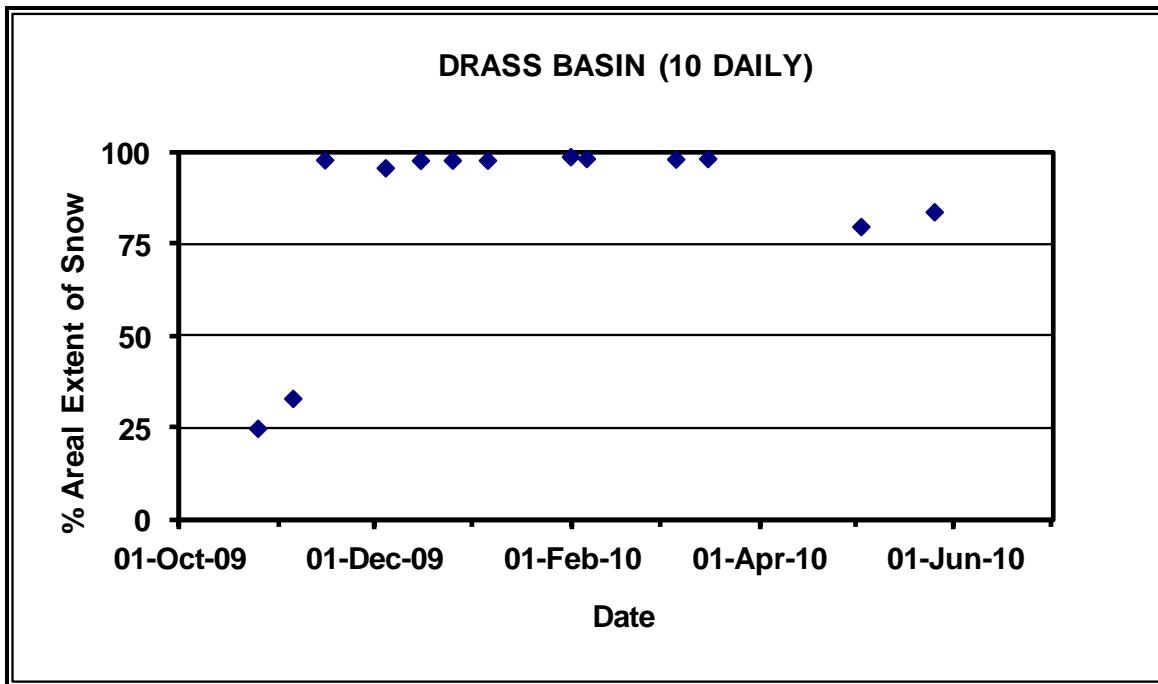
**BASIN AREA: 1683 sq km**

S No	Date	Snow cover (sq km)	Snow cover (%)	S No	Date	Snow cover (sq km)	Snow cover (%)
<b>October 2009</b>							
1	27-Oct-09	422	25				
<b>November 2009</b>							
2	06-Nov-09	559	33	3	11-Nov-09	1652	98
<b>December 2009</b>							
4	5-Dec-09	1616	96	6	24-Dec-09	1650	98
5	19-Dec-09	1649	98				
<b>January 2010</b>							
7	07-Jan-10	1650	98	8	25-Jan-10	1658	99
<b>February 2010</b>							
9	10-Feb-10	1658	99				
<b>March 2010</b>							
10	05-Mar-10	1655	98	11	11-Mar-10	1658	98
<b>April 2010</b>							
12	05-April-10	1616	96				
<b>May 2010</b>							
13	2-May-10	1370	80	14	25-May-10	1370	84

### Snow cover depletion curve



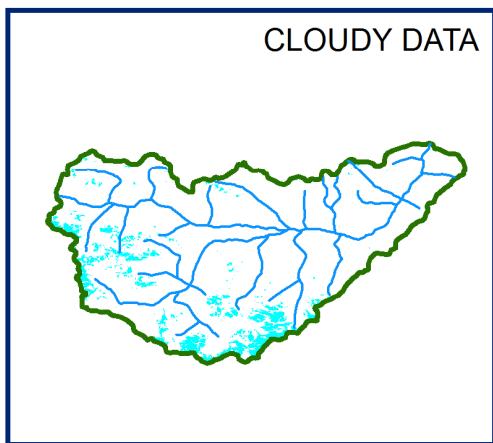
## Snow cover depletion curve



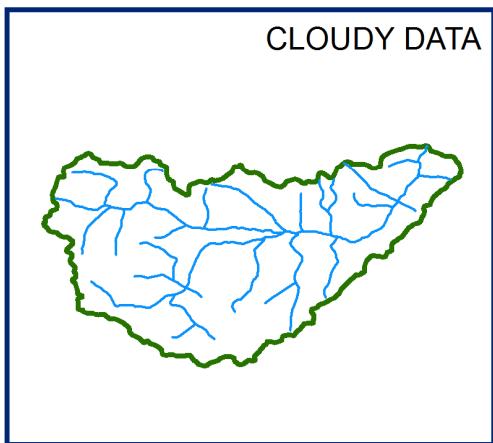
# *SNOW COVER MAP*

## SNOW COVER MAP:

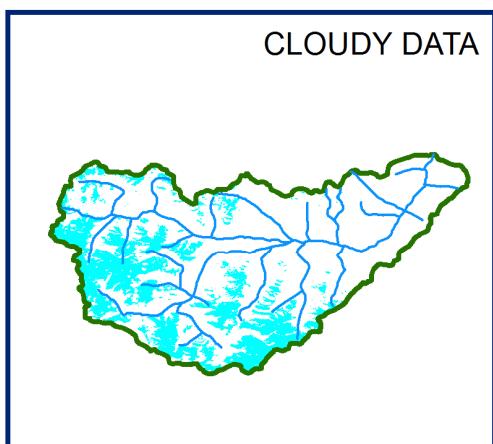
## DRASS BASIN



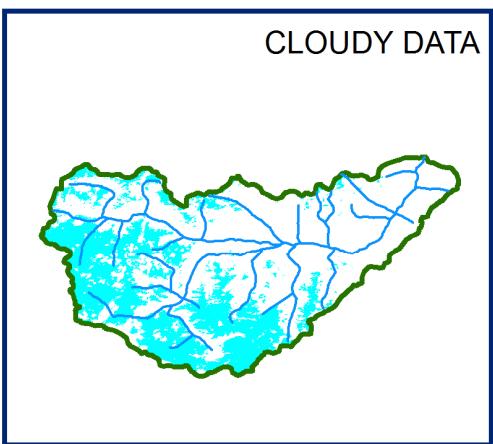
03 OCTOBER 2009



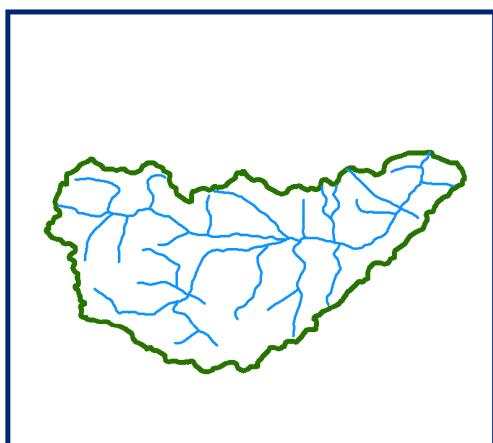
08 OCTOBER 2009



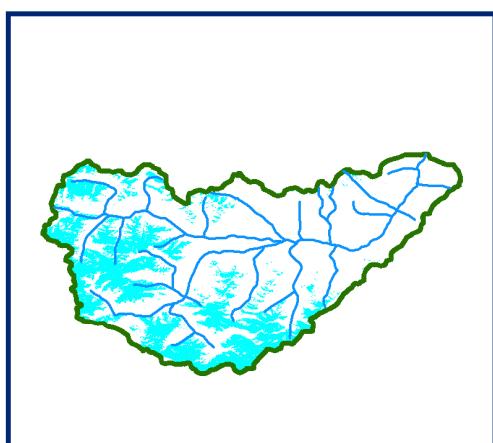
12 OCTOBER 2009



17 OCTOBER 2009



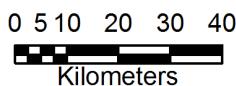
DATA NOT AVAILABLE



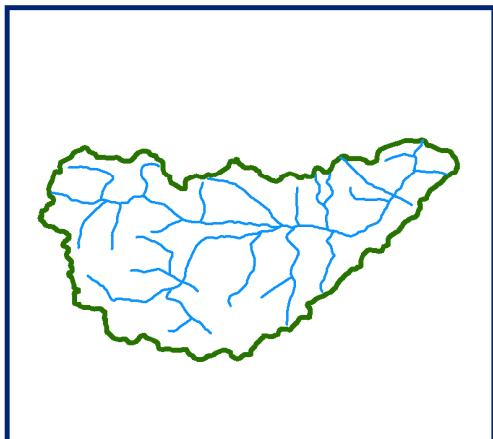
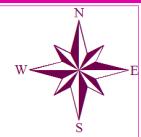
27 OCTOBER 2009



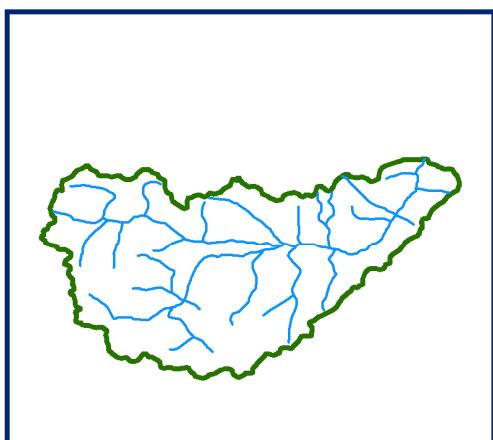
SNOW



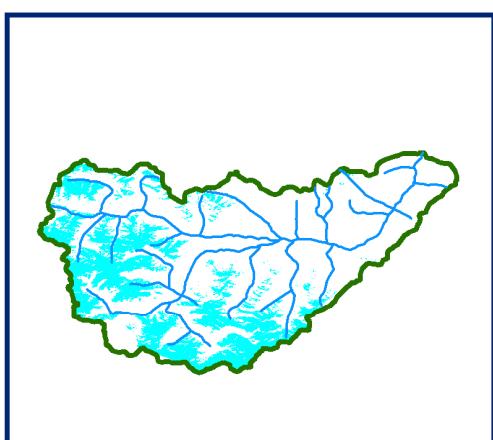
## 10 DAILY SNOW COVER MAP: DRASS BASIN



DATA NOT AVAILABLE



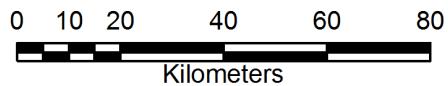
DATA NOT AVAILABLE



DATA USED  
27 OCTOBER 2009

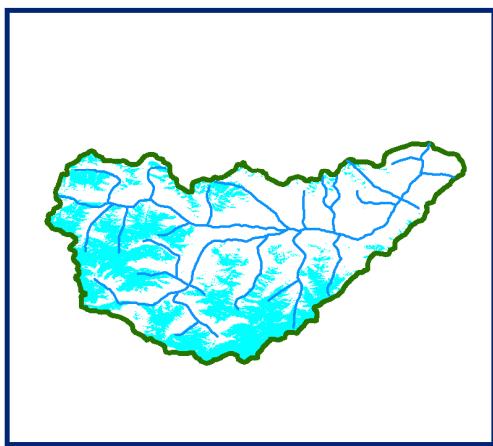


SNOW

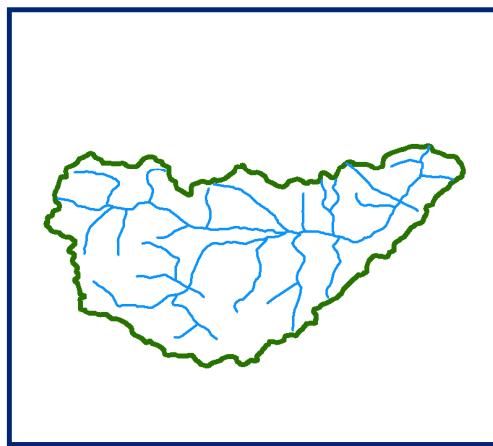


## SNOW COVER MAP:

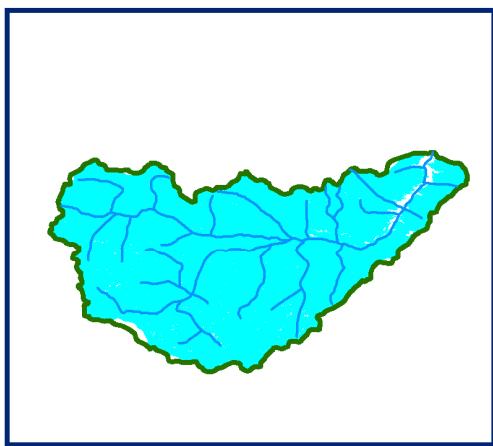
## DRASS BASIN



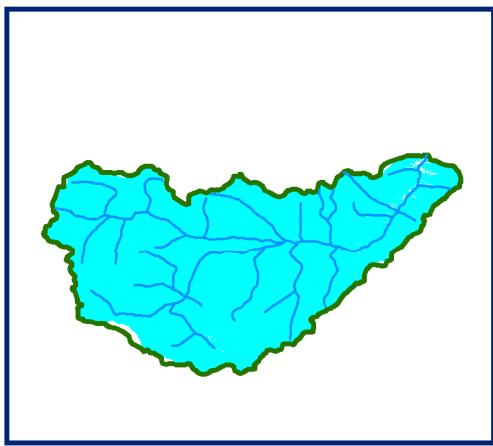
01 NOVEMBER 2009



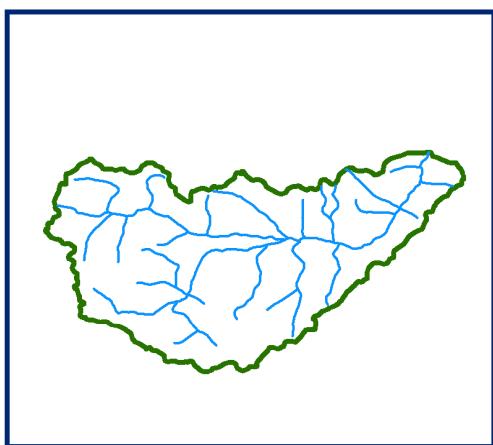
06 NOVEMBER 2009



11 NOVEMBER 2009



20 NOVEMBER 2009



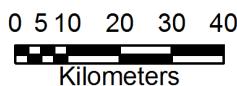
DATA NOT AVAILABLE

CLOUDY DATA

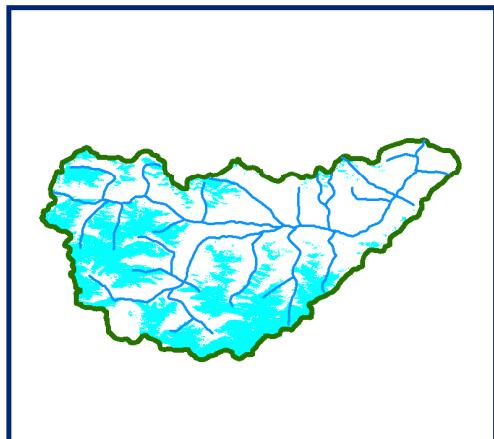
25 NOVEMBER 2009



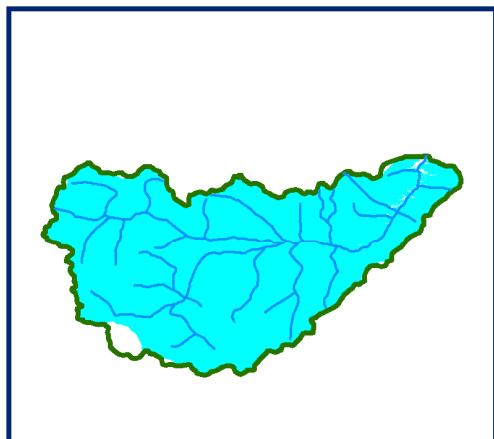
SNOW



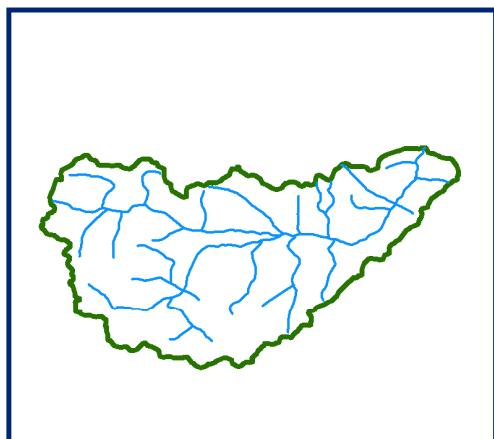
## 10 DAILY SNOW COVER MAP: DRASS BASIN



DATA USED  
**06 NOVEMBER 2009**



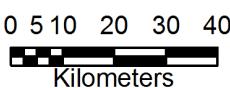
DATA USED  
**11 NOVEMBER 2009**



**DATA NOT AVAILABLE**



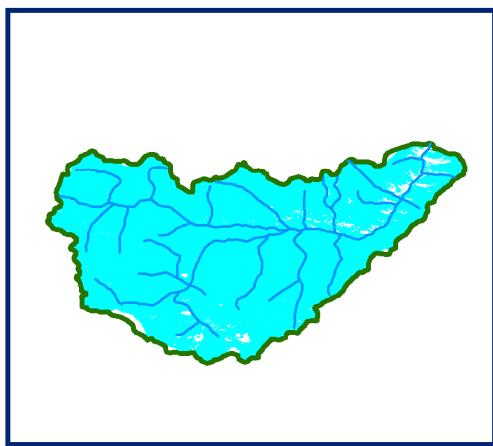
SNOW



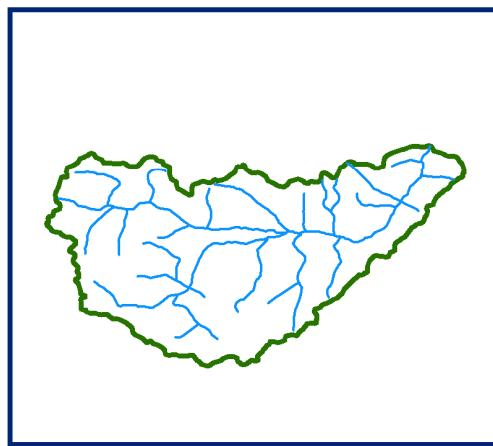
0 5 10 20 30 40

## SNOW COVER MAP:

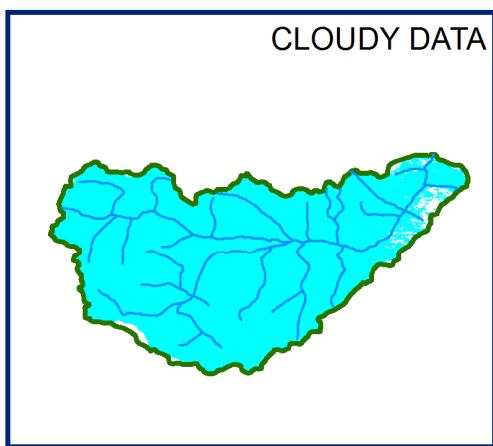
## DRASS BASIN



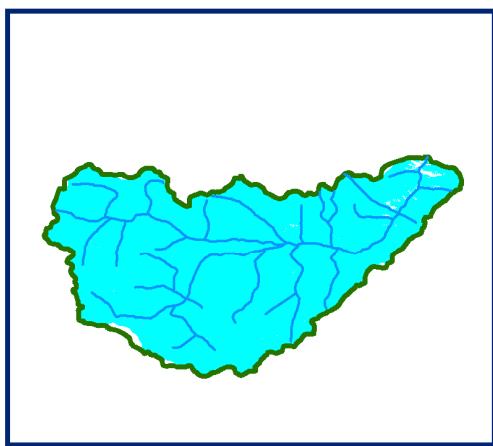
04 DECEMBER 2009



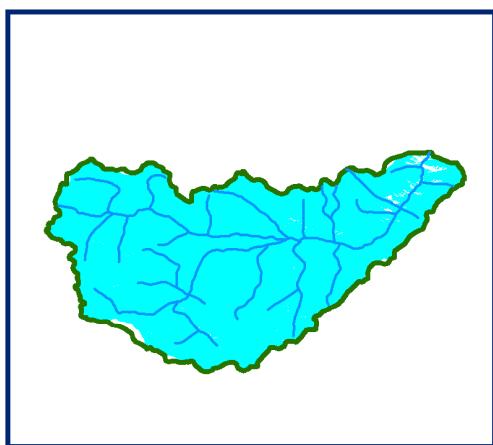
DATA NOT AVAILABLE



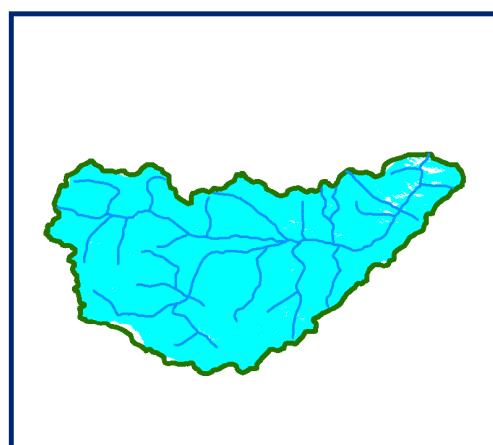
14 DECEMBER 2009



19 DECEMBER 2009



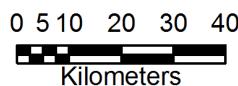
24 DECEMBER 2009



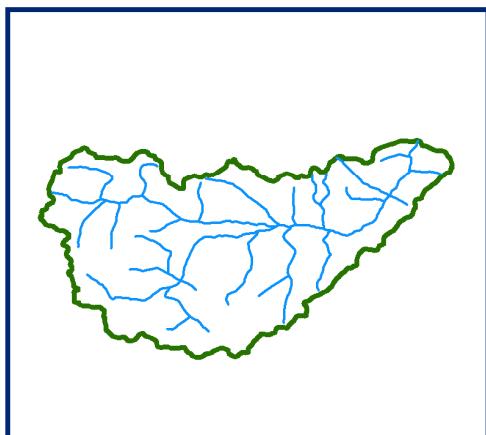
29 DECEMBER 2009



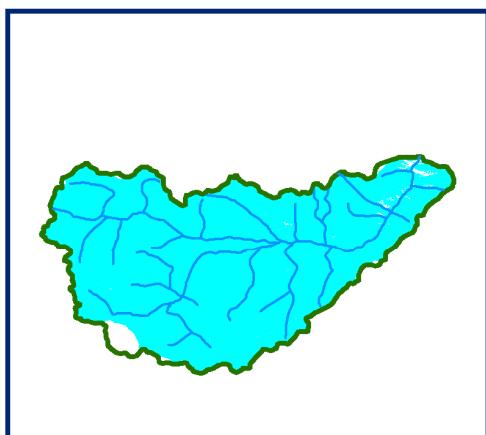
SNOW



## 10 DAILY SNOW COVER MAP: DRASS BASIN



DATA NOT AVAILABLE



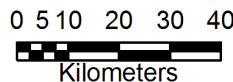
DATA USED  
**19 DECEMBER 2009**



DATA USED  
**24 DECEMBER 2009**

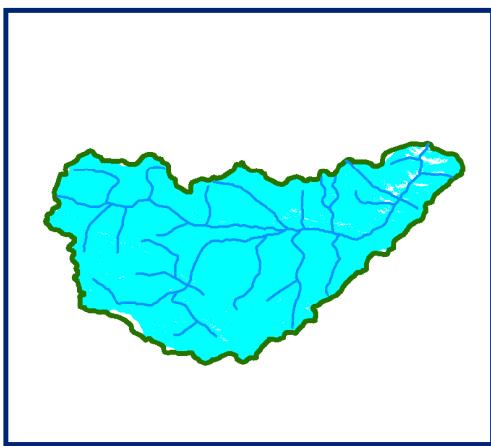


SNOW



## SNOW COVER MAP:

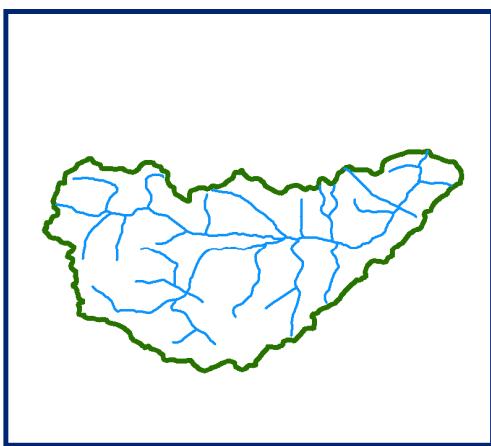
## DRASS BASIN



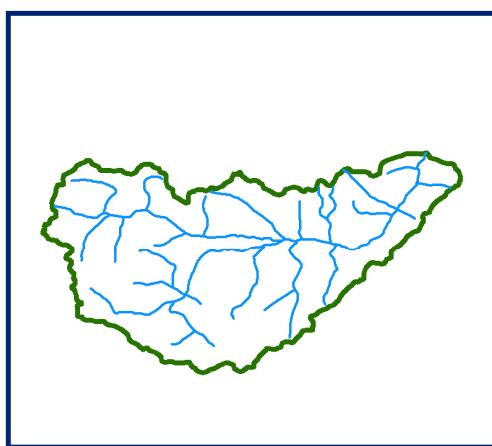
02 JANUARY 2010



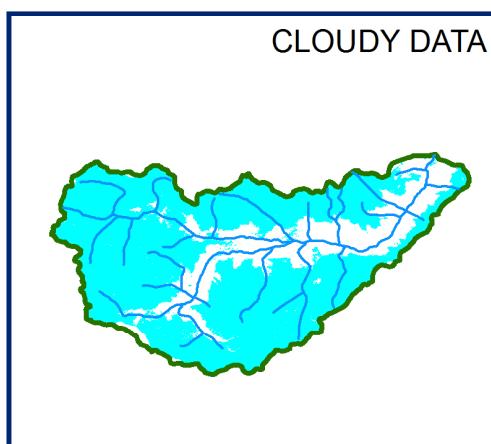
07 JANUARY 2010



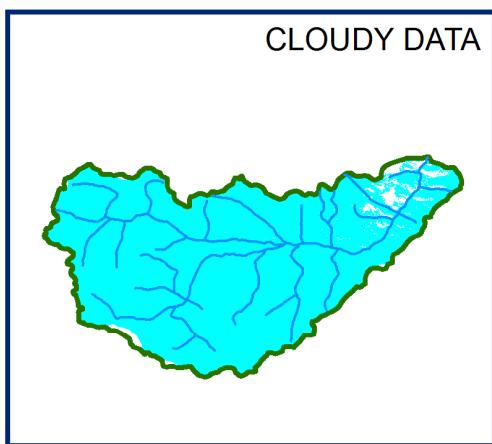
CLOUDY DATA



CLOUDY DATA



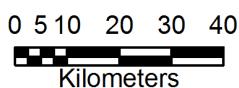
21 JANUARY 2010



26 JANUARY 2010



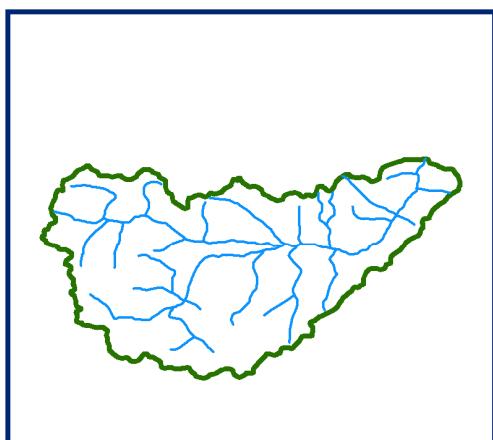
SNOW



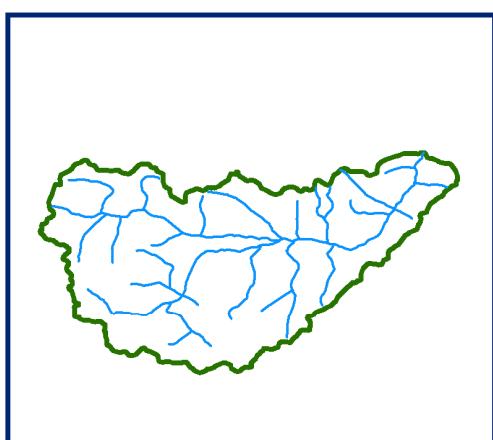
## 10 DAILY SNOW COVER MAP: DRASS BASIN



DATA USED  
07 JANUARY 2010



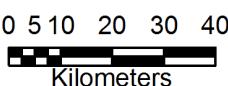
DATA NOT AVAILABLE



DATA NOT AVAILABLE



SNOW

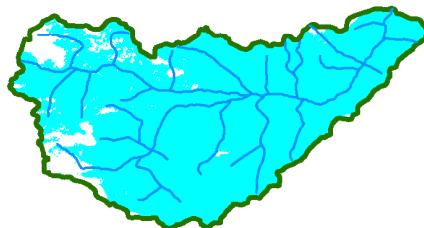


## SNOW COVER MAP:

## DRASS BASIN



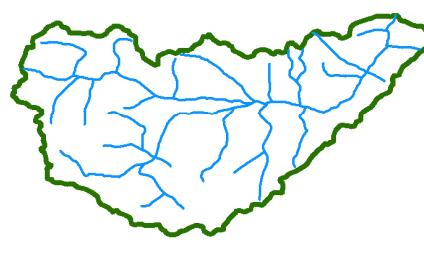
CLOUDY DATA



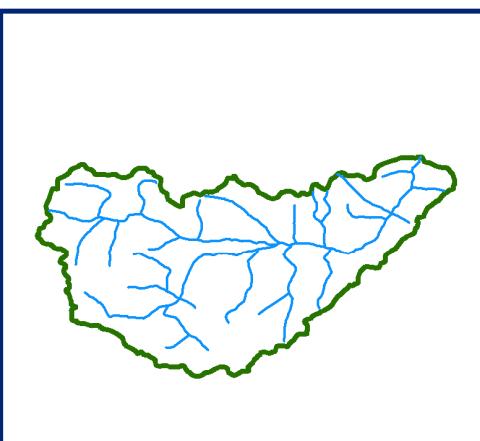
05 FEBRUARY 2010



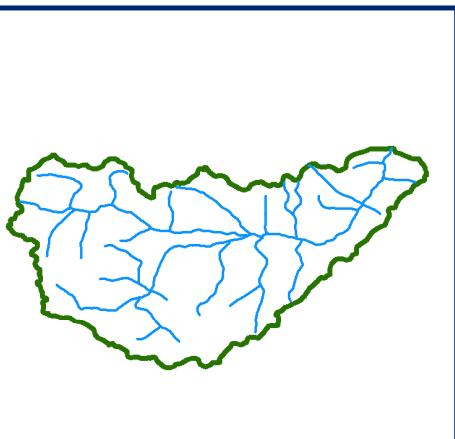
10 FEBRUARY 2010



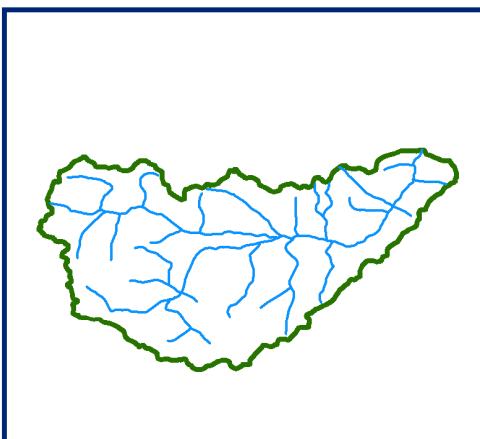
DATA NOT AVAILABLE



DATA NOT AVAILABLE



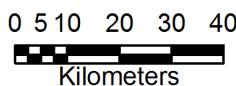
DATA NOT AVAILABLE



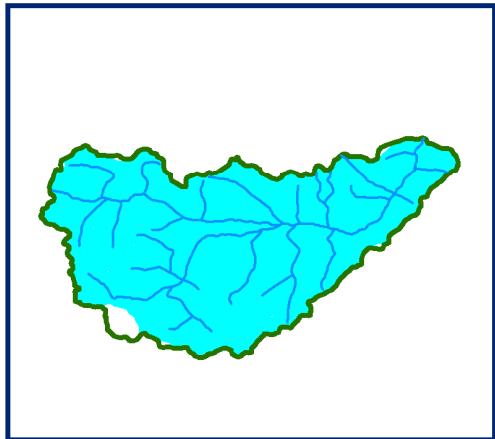
DATA NOT AVAILABLE



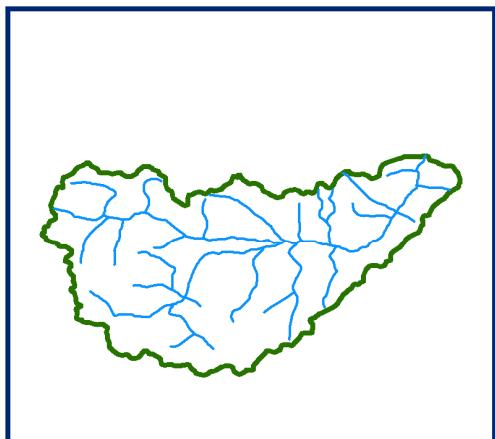
SNOW



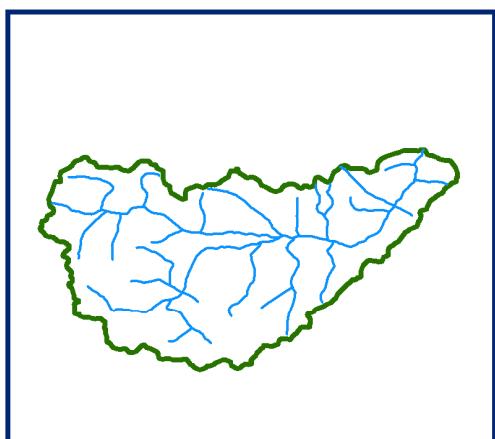
## 10 DAILY SNOW COVER MAP: DRASS BASIN



DATA USED  
10 FEBRUARY 2010



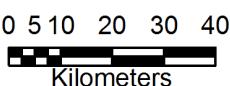
DATA NOT AVAILABLE



DATA NOT AVAILABLE

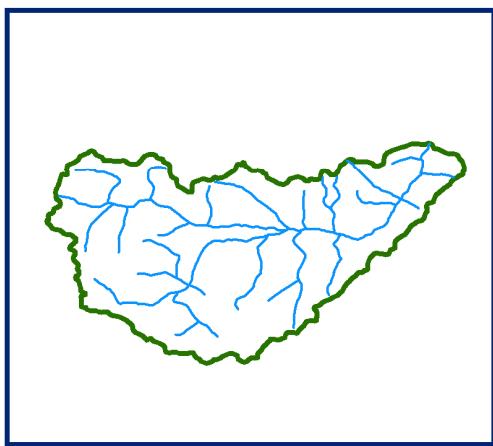


SNOW



**SNOW COVER MAP:**

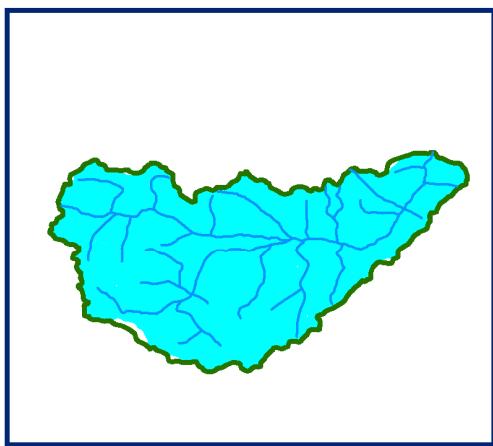
**DRASS BASIN**



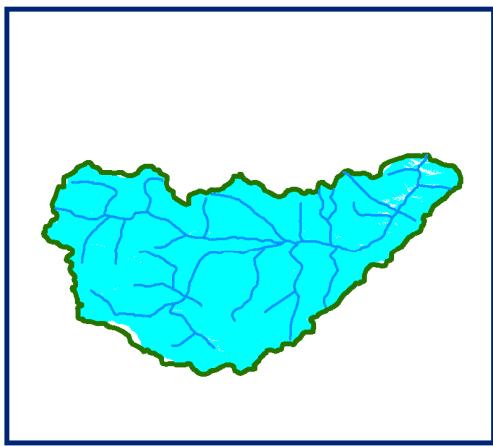
**DATA NOT AVAILABLE**



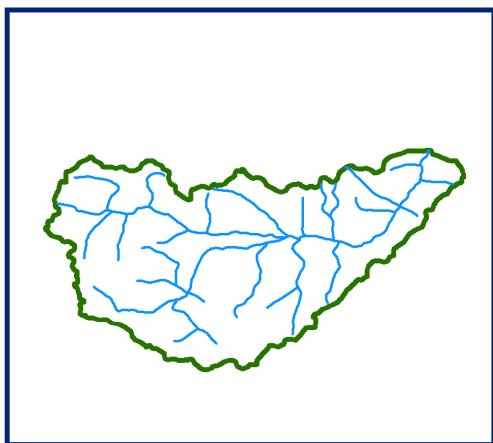
**05 MARCH 2010**



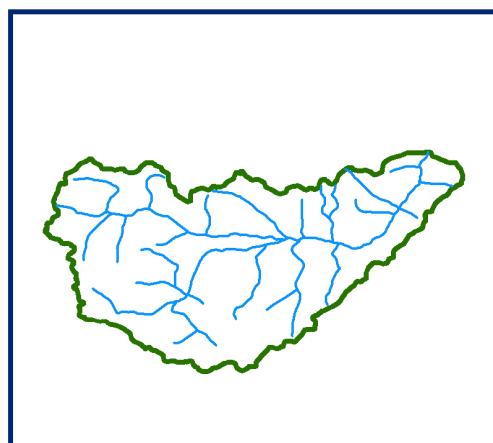
**11 MARCH 2010**



**20 MARCH 2010**



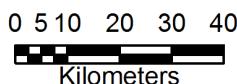
**DATA NOT AVAILABLE**



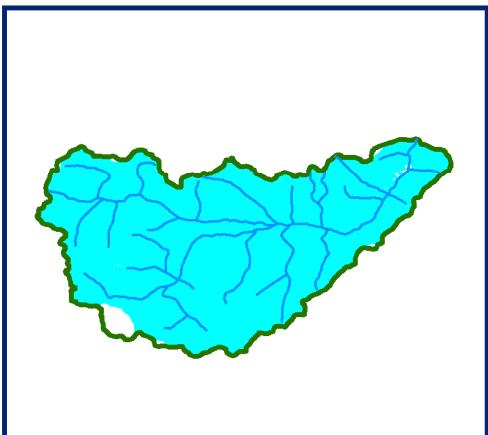
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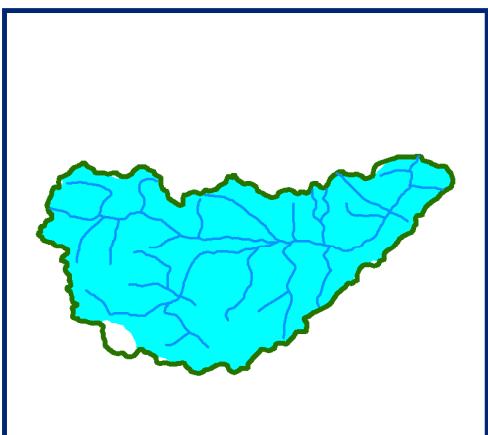
**SNOW**



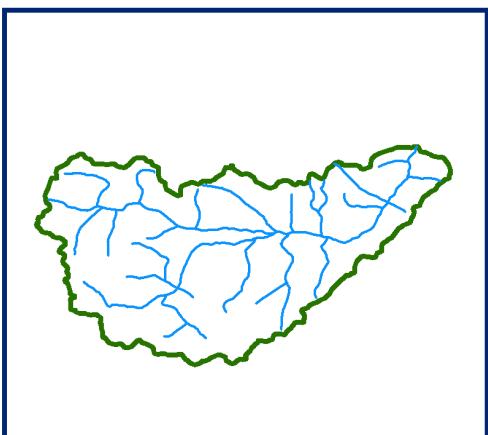
## 10 DAILY SNOW COVER MAP: DRASS BASIN



DATA USED  
**05 MARCH 2010**



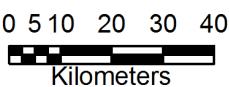
DATA USED  
**11 MARCH 2010**



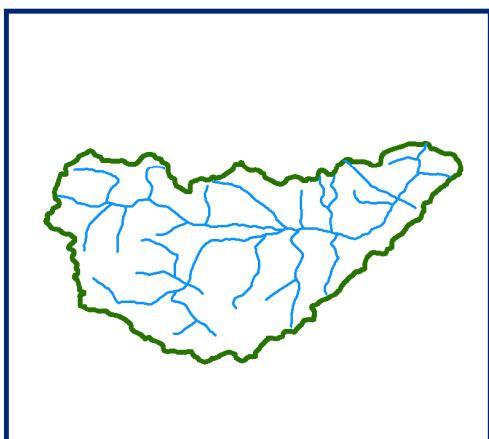
**DATA NOT AVAILABLE**



SNOW

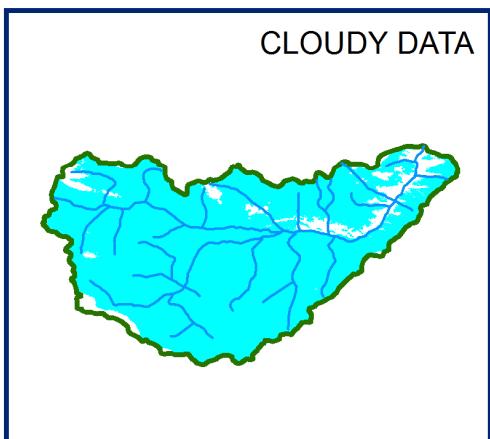


**SNOW COVER MAP:**

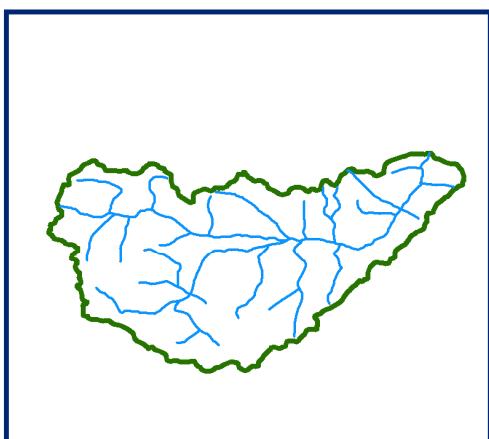


**DATA NOT AVAILABLE**

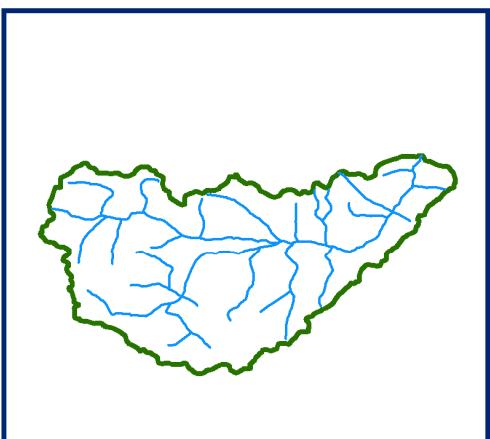
**DRASS BASIN**



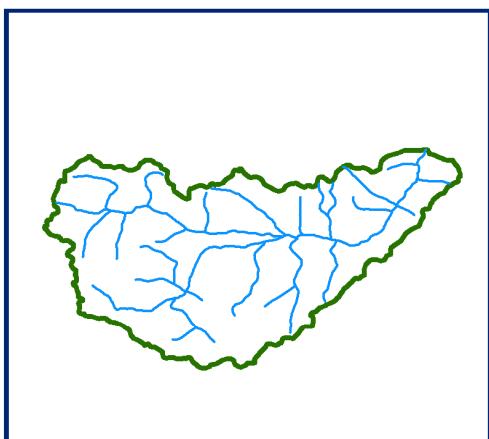
**08 APRIL 2010**



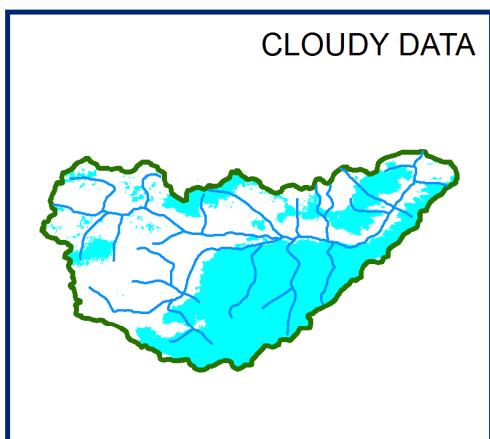
**DATA NOT AVAILABLE**



**DATA NOT AVAILABLE**



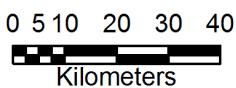
**DATA NOT AVAILABLE**



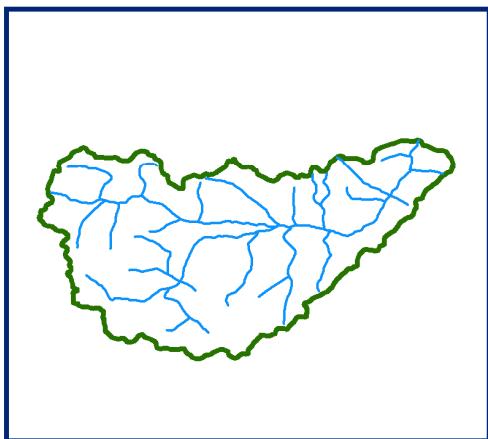
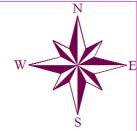
**27 APRIL 2010**



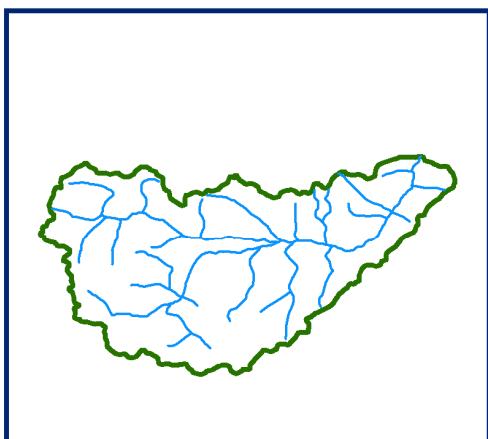
**SNOW**



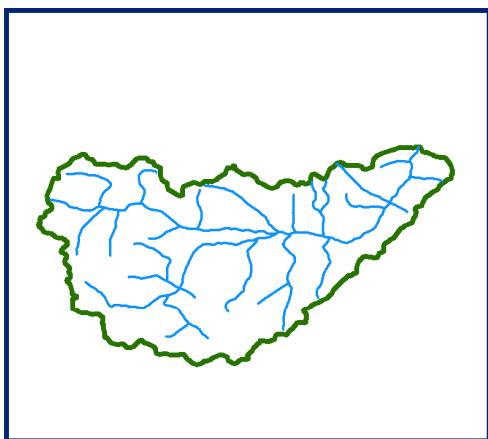
## 10 DAILY SNOW COVER MAP: DRASS BASIN



DATA NOT AVAILABLE



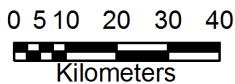
DATA NOT AVAILABLE



DATA NOT AVAILABLE

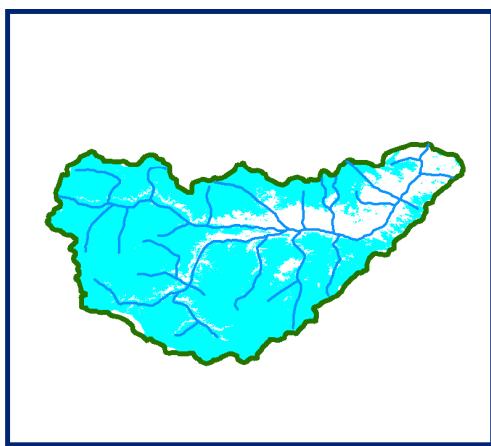


SNOW

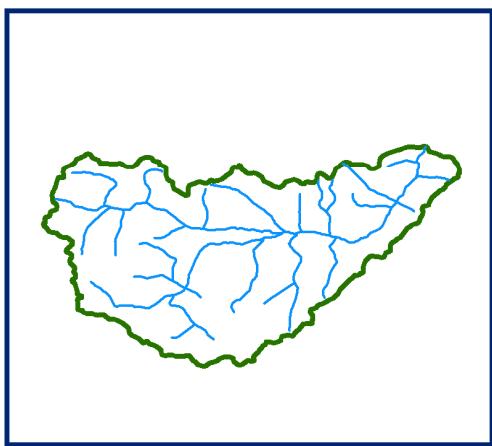


**SNOW COVER MAP:**

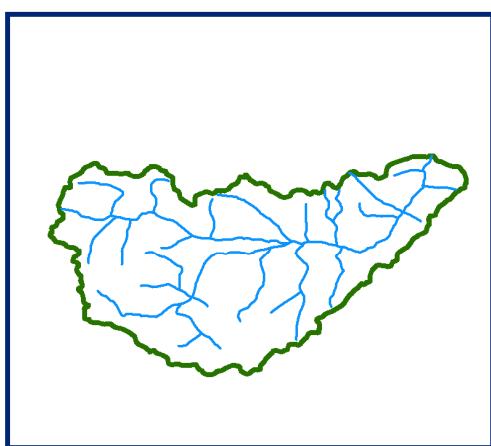
**DRASS BASIN**



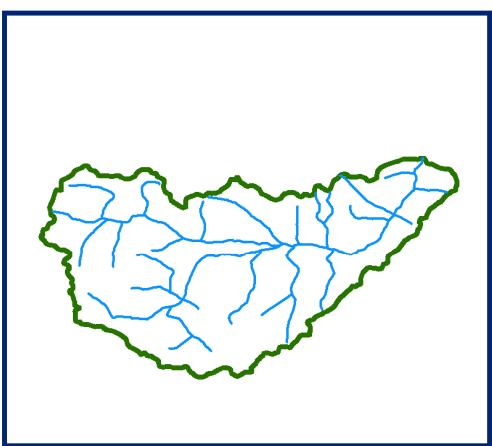
**02 MAY 2010**



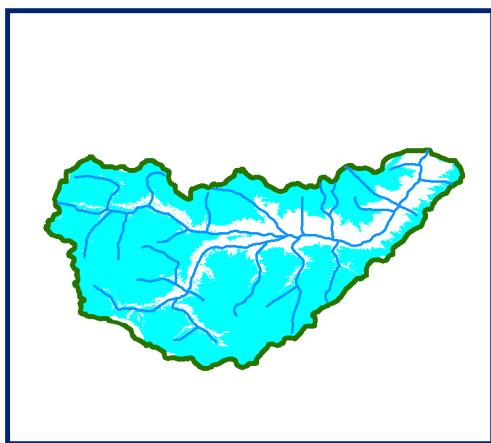
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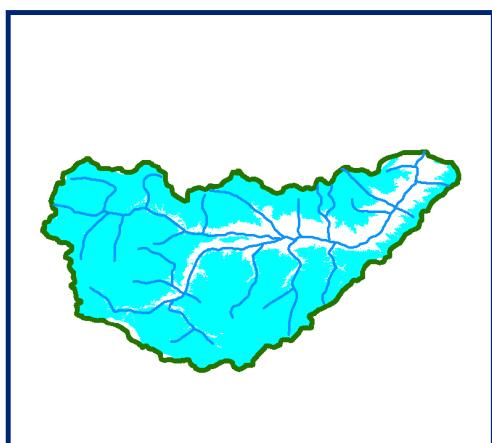
**DATA NOT AVAILABLE**



**DATA NOT AVAILABLE**



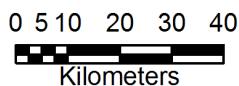
**26 MAY 2010**



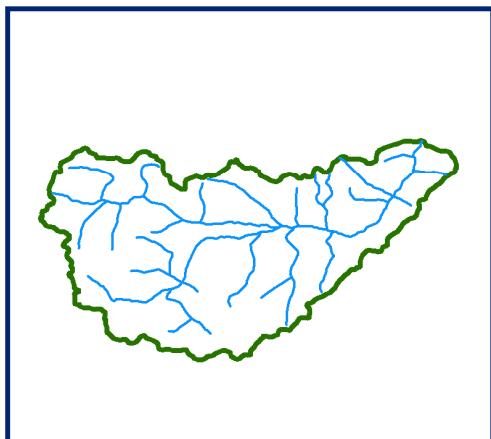
**31 MAY 2010**



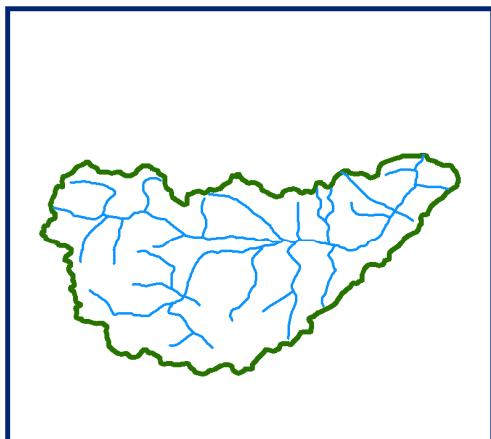
**SNOW**



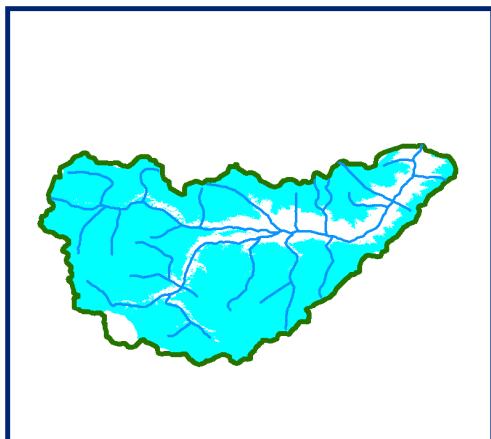
## 10 DAILY SNOW COVER MAP: DRASS BASIN



**DATA NOT AVAILABLE**



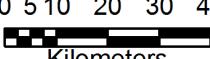
**DATA NOT AVAILABLE**



**DATA USED  
26 MAY 2010**



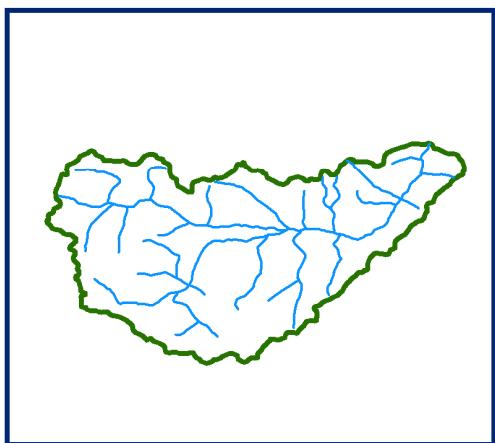
**SNOW**



**Kilometers**

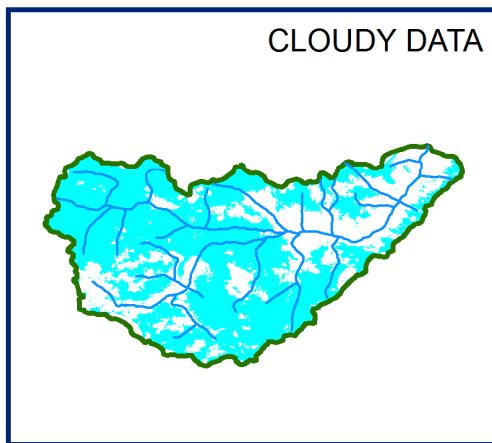
0 5 10 20 30 40

**SNOW COVER MAP:**

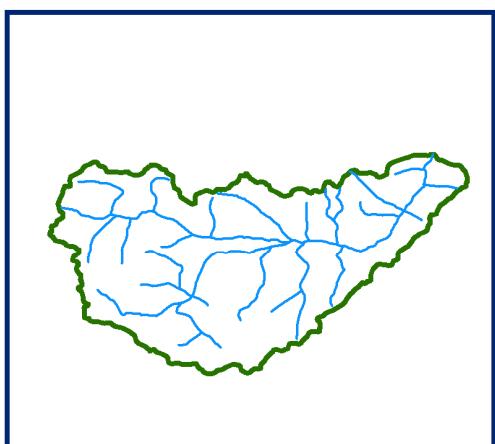


**DATA NOT AVAILABLE**

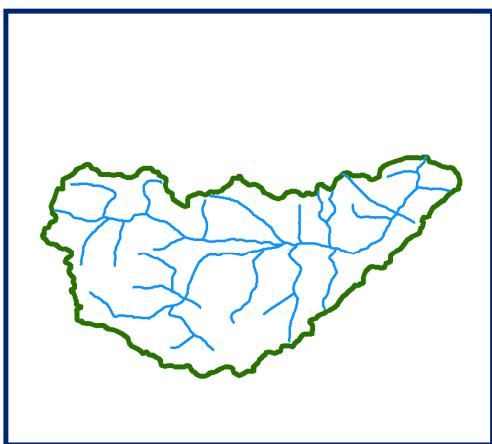
**DRASS BASIN**



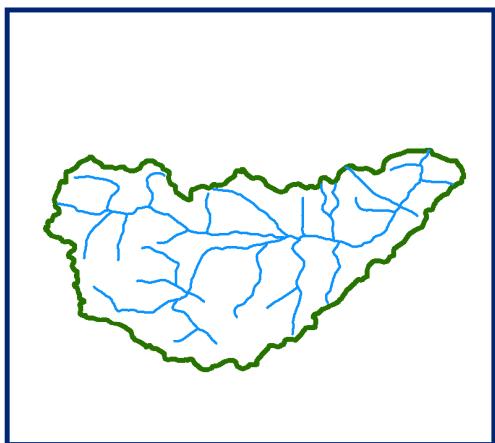
**05 JUNE 2010**



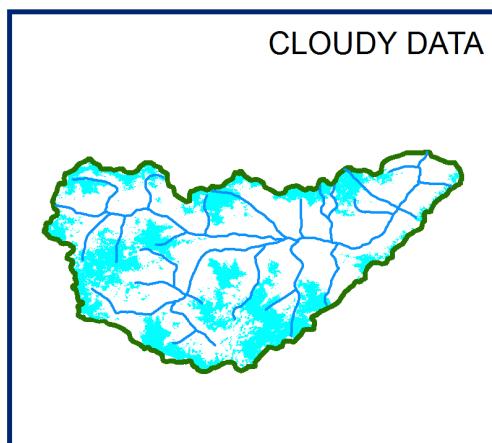
**DATA NOT AVAILABLE**



**DATA NOT AVAILABLE**



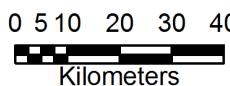
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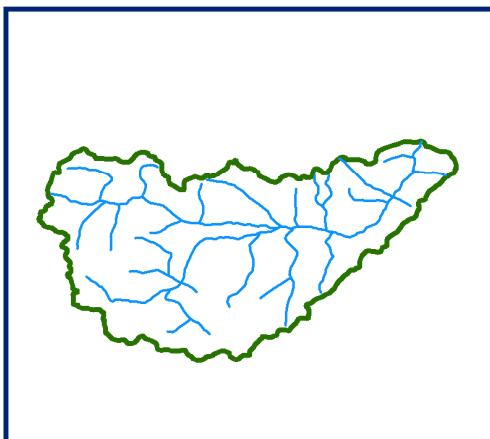
**29 JUNE 2010**



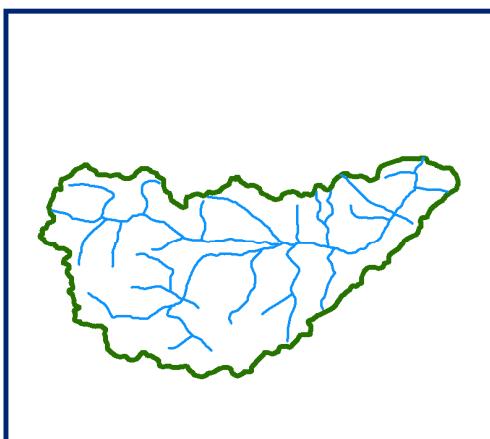
**SNOW**



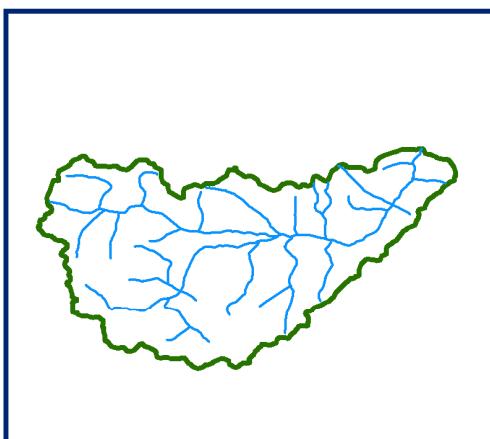
## 10 DAILY SNOW COVER MAP: DRASS BASIN



**DATA NOT AVAILABLE**



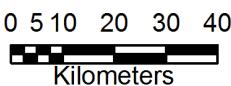
**DATA NOT AVAILABLE**



**DATA NOT AVAILABLE**



SNOW



### AREAL EXTENT OF SNOW (5 DAILY)

**BASIN NAME: SURU**

**BASIN AREA: 3575 sq km**

S No	Date	Snow cover (sq km)	Snow cover (%)	S No	Date	Snow cover (sq km)	Snow cover (%)
<b>October 2009</b>							
1	03-Oct-09	528	15	4	17-Oct-09	1221	34
2	08-Oct-09	797	22	5	18-Oct-09	1189	33
3	12-Oct-09	619	17	6	27-Oct-09	789	22
<b>November 2009</b>							
1	01-nov-09	1094	31	5	15-nov-09	2756	77
2	06-Nov-09	807	23	6	20-nov-09	3535	99
3	11-nov-09	3446	96	7	25-nov-09	3367	94
4	10-nov-09	2895	81	8	30-nov-09	3386	95
<b>December 2009</b>							
1	4-dec-09	3016	84	5	24-Dec-09	3485	97
2	14-Dec-09	3479	97	6	28-Dec-09	3467	97
3	19-Dec-09	3503	98	7	29-Dec-09	3445	96
4	23-Dec-09	3251	91				
<b>January 2010</b>							
1	2-Jan-10	3443	96	4	26-Jan-10	3434	96
2	7-Jan-10	3513	98	5	31-Jan-10	3562	100
3	21-Jan-10	3402	95				
<b>February 2010</b>							
1	5-Feb-10	3386	95	2	10-Feb-10	3557	99
<b>MARCH 2010</b>							
1	5-Mar-10	3528	99	3	20-Mar-10	3437	96
2	11-Mar-10	3543	99				
<b>APRIL 2010</b>							
1	8-Apr-10	3226	90	2	27-Apr-10	3026	85
<b>MAY 2010</b>							
1	2-May-10	2703	76	4	26-May-10	2847	80
2	21-May-10	3099	87	5	31-May-10	3020	84
3	22-May-10	2872	80				
<b>JUNE 2010</b>							
1	5-Jun-10	2697	75	2	29-Jun-10	1336	37

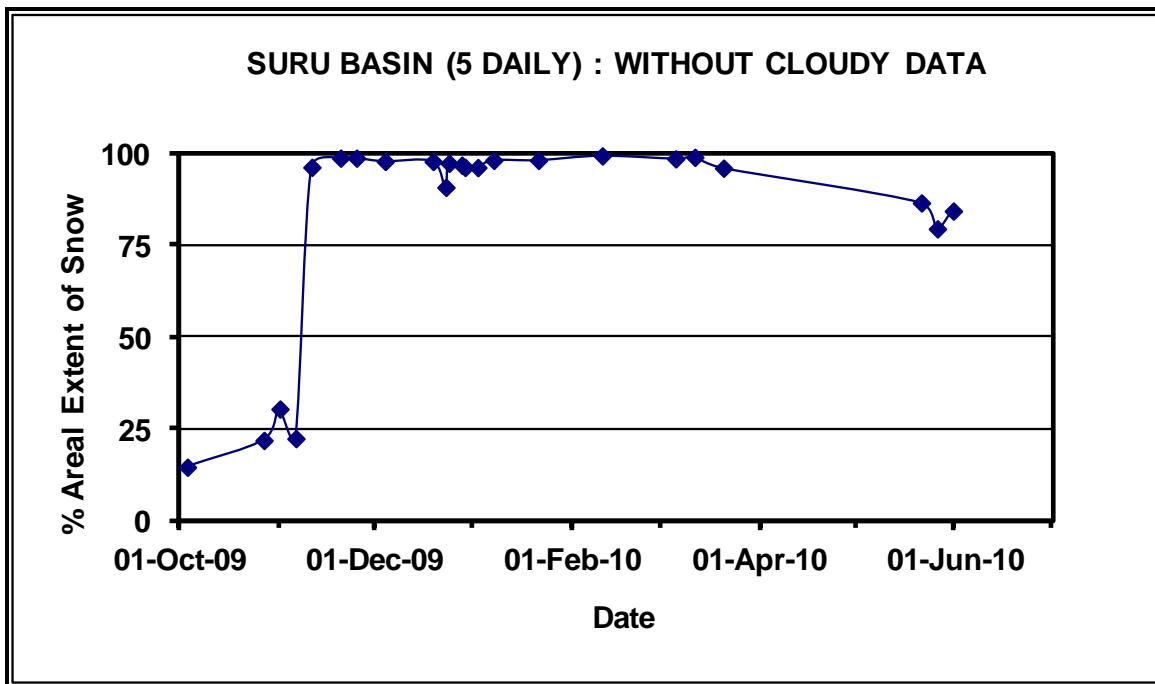
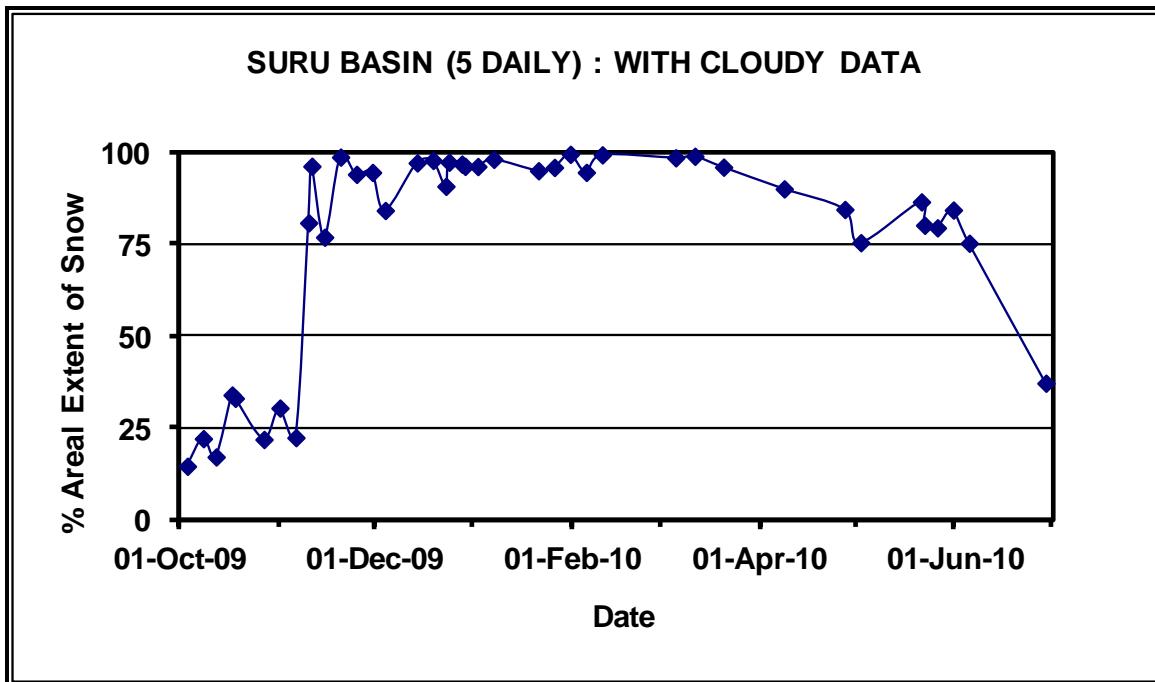
**AREAL EXTENT OF SNOW (10 DAILY)**

**BASIN NAME: SURU**

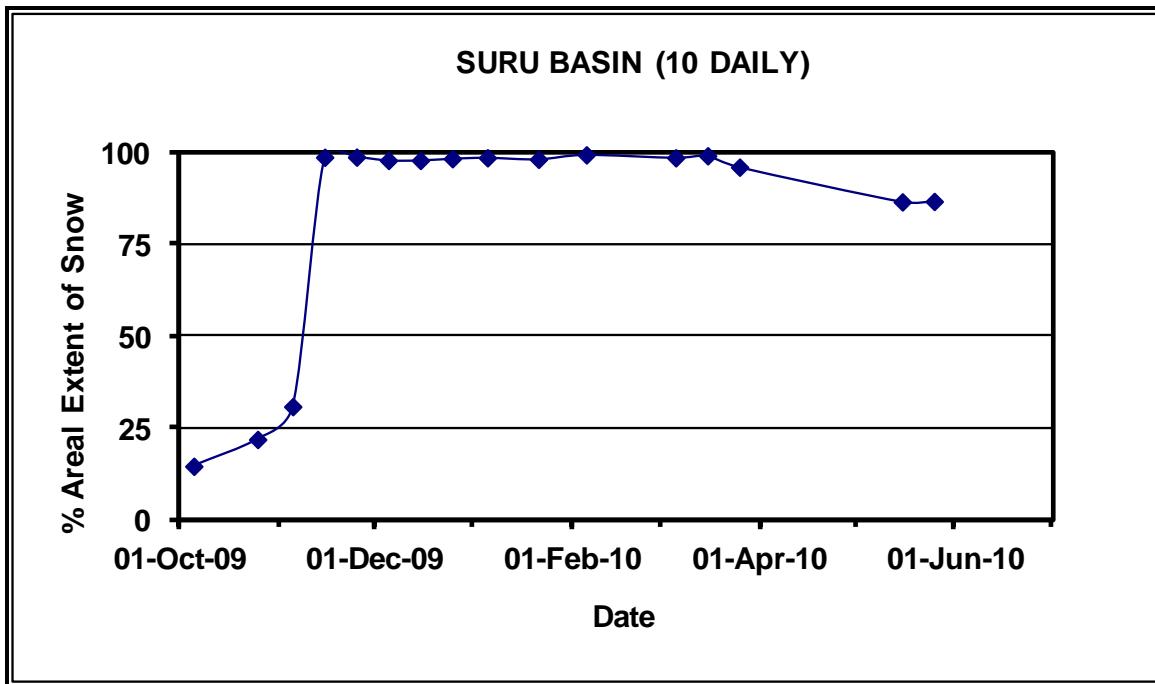
**BASIN AREA: 3575 sq km**

S No	Date	Snow cover (sq km)	Snow cover (%)	S No	Date	Snow cover (sq km)	Snow cover (%)
<b>October 2009</b>							
1	5-Oct-09	528	15	2	25-Oct-09	789	22
<b>November 2009</b>							
3	05-nov-09	1108	31	5	25-nov-09	3539	99
4	15-nov-09	3539	99				
<b>December 2009</b>							
6	15-Dec-09	3503	98	7	25-Dec-09	3519	98
<b>January 2010</b>							
8	5-Jan-10	3539	99				
<b>February 2010</b>							
9	5-Feb-10	3539	99				
<b>March 2010</b>							
10	5-Mar-10	3538	99	12	25-Mar-10	3432	96
11	15-Mar-10	3540	99				
<b>May 2010</b>							
13	15-May-10	3110	87	14	25-May-10	3109	87

### Snow cover depletion curve



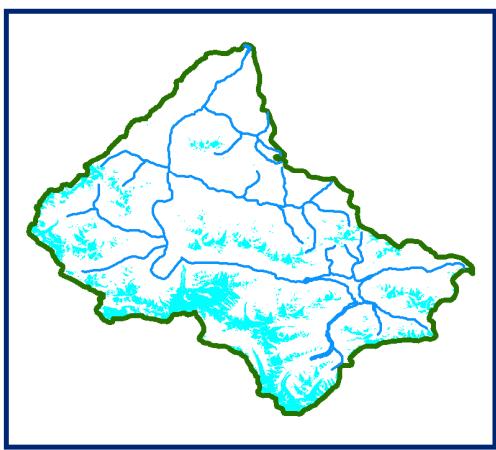
### Snow cover depletion curve



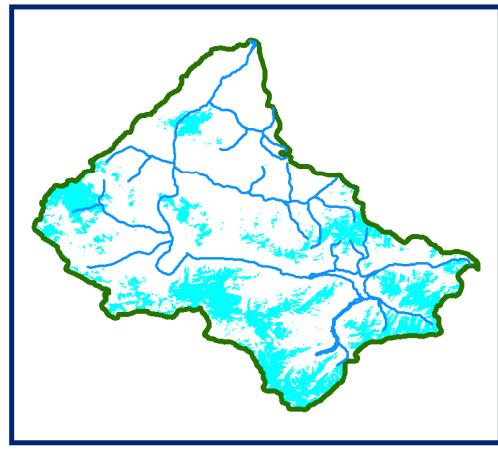
# *SNOW COVER MAP*

## SNOW COVER MAP:

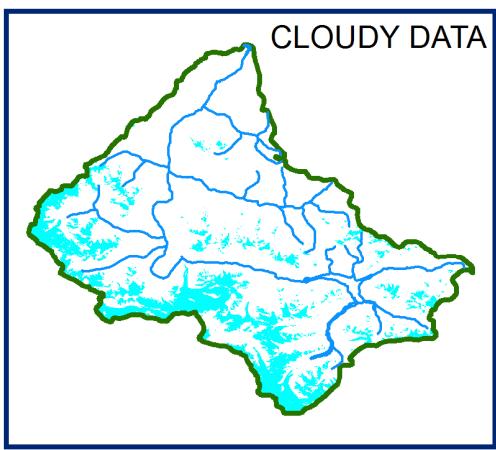
## SURU BASIN



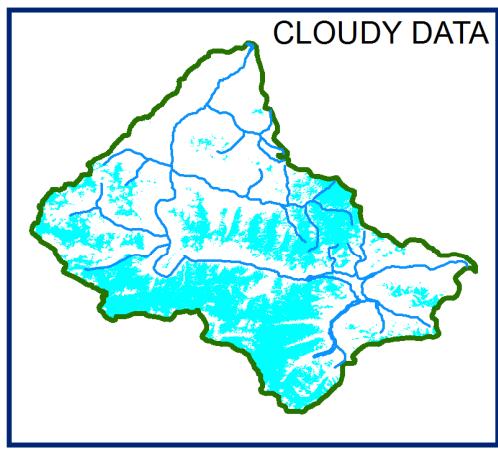
03 OCTOBER 2009



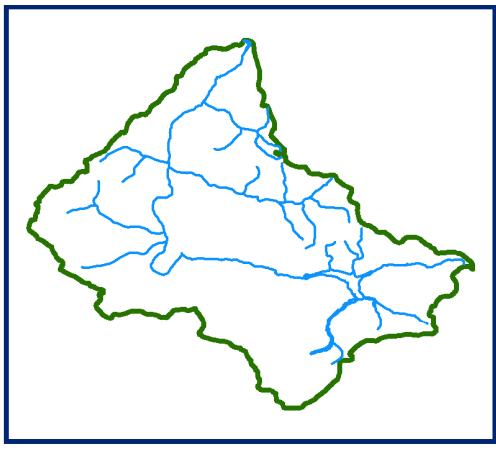
08 OCTOBER 2009



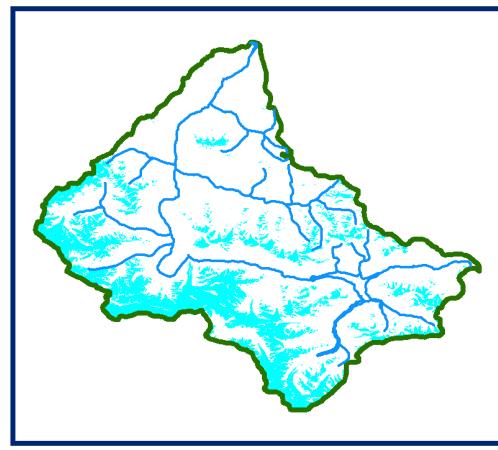
12 OCTOBER 2009



17 OCTOBER 2009



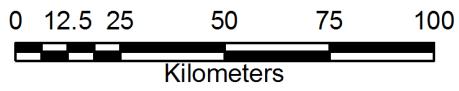
DATA NOT AVAILABLE



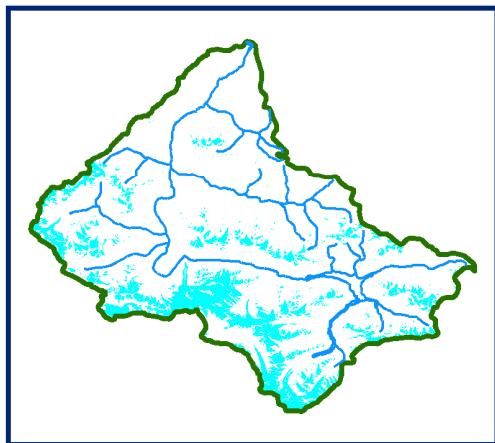
27 OCTOBER 2010



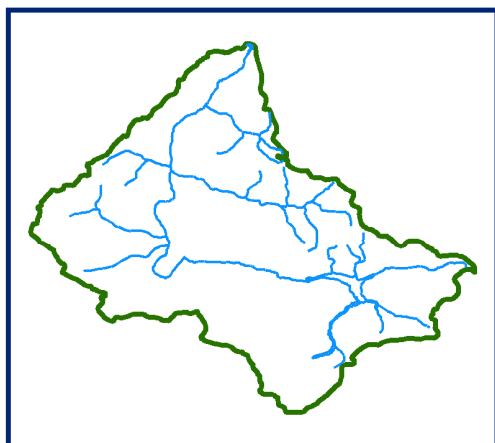
SNOW



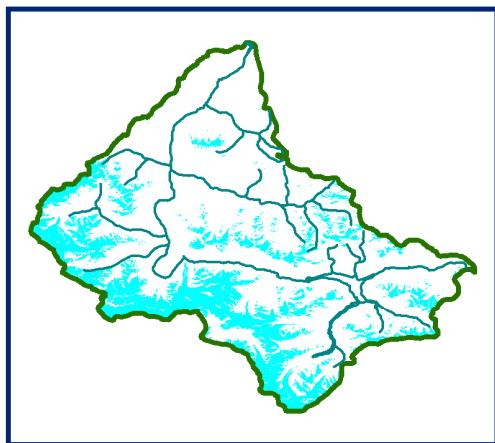
## 10 DAILY SNOW COVER MAP: SURU BASIN



DATA USED  
**03 OCTOBER 2009**



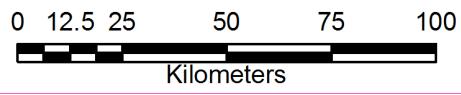
**DATA NOT AVAILABLE**



DATA USED  
**27 OCTOBER 2009**

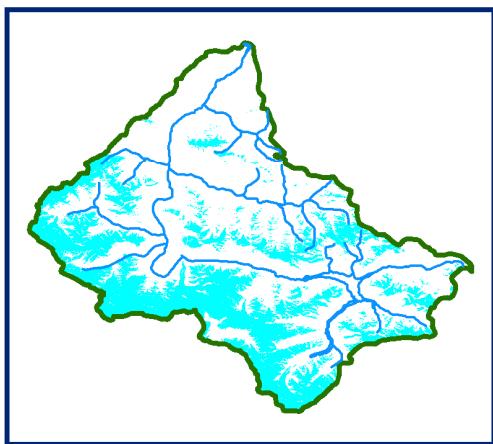


SNOW

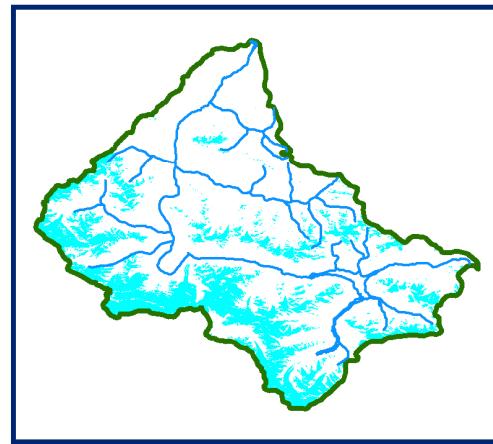


**SNOW COVER MAP:**

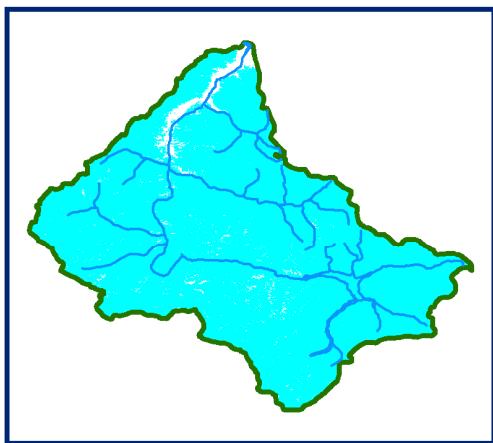
**SURU BASIN**



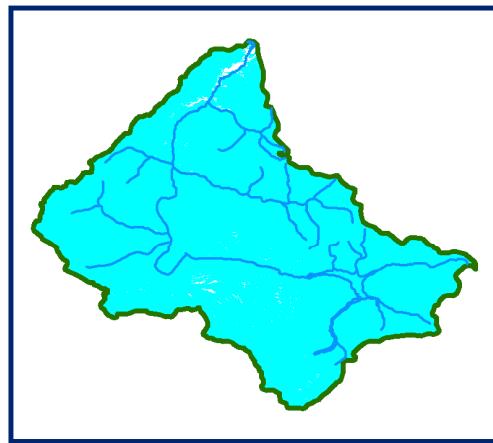
**01 NOVEMBER 2009**



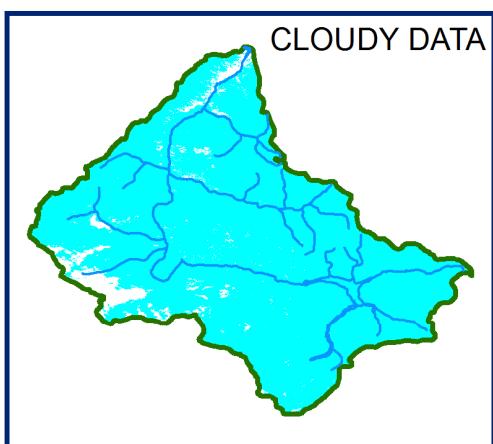
**06 NOVEMBER 2009**



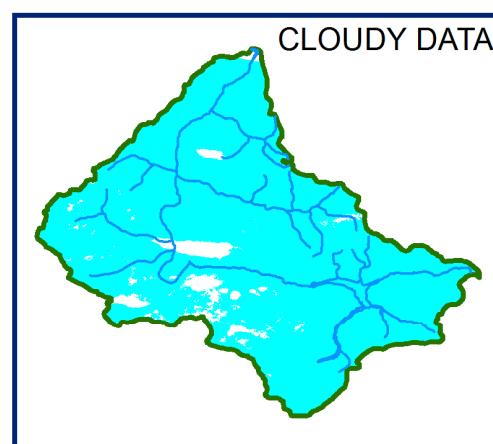
**11 NOVEMBER 2009**



**20 NOVEMBER 2009**



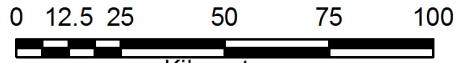
**25 NOVEMBER 2009**



**30 NOVEMBER 2009**

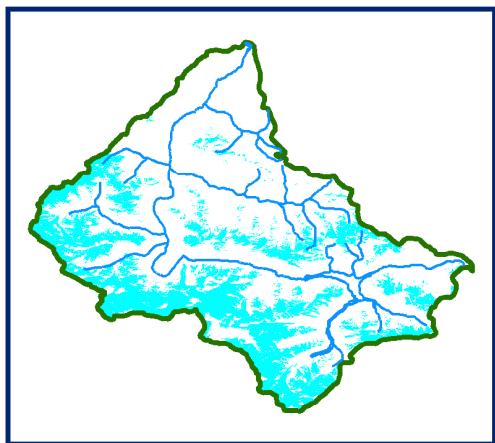


**SNOW**

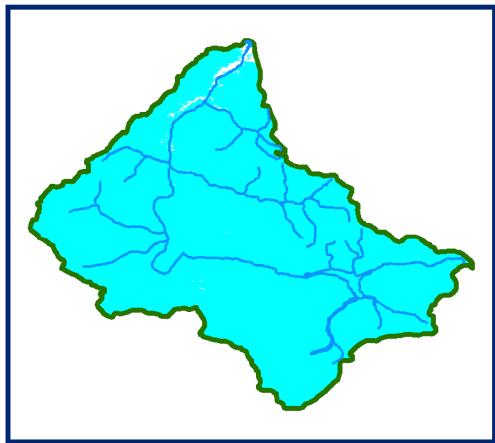


Kilometers

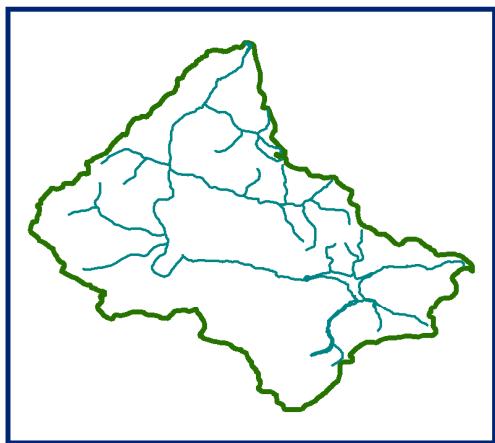
## 10 DAILY SNOW COVER MAP: SURU BASIN



DATA USED  
01 NOVEMBER 2009



DATA USED  
11 NOVEMBER 2009



DATA NOT AVAILABLE

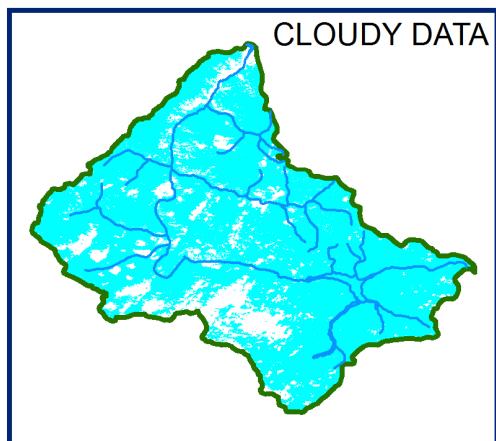


SNOW

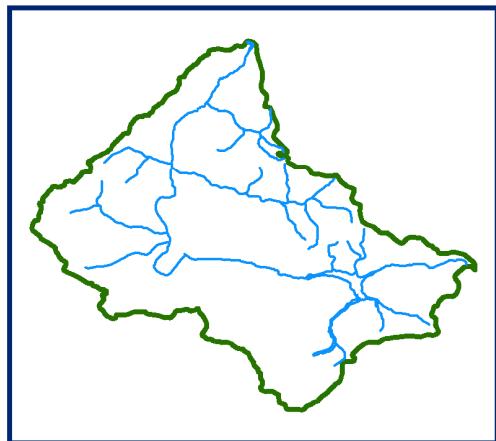


## SNOW COVER MAP:

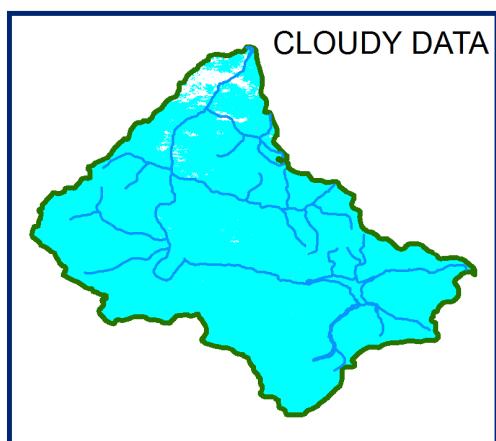
## SURU BASIN



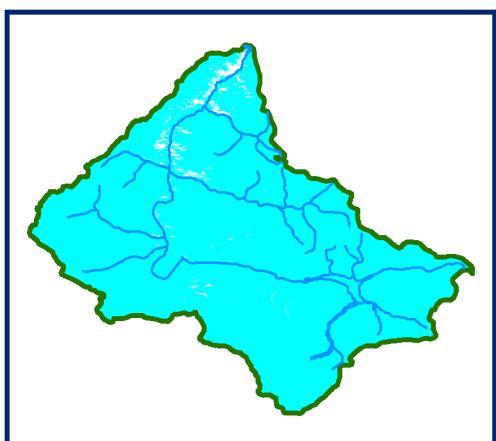
04 DECEMBER 2009



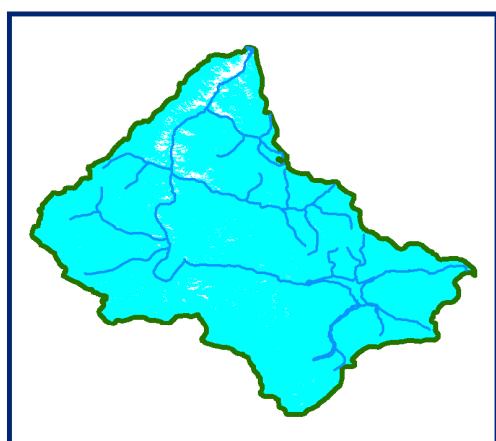
DATA NOT AVAILABLE



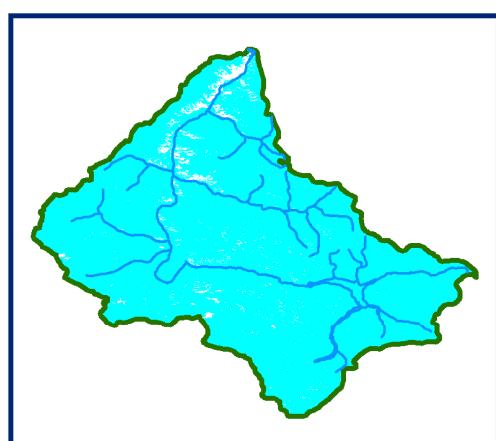
14 DECEMBER 2009



19 DECEMBER 2009



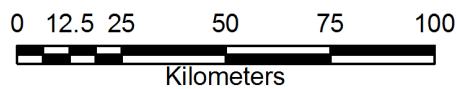
24 DECEMBER 2009



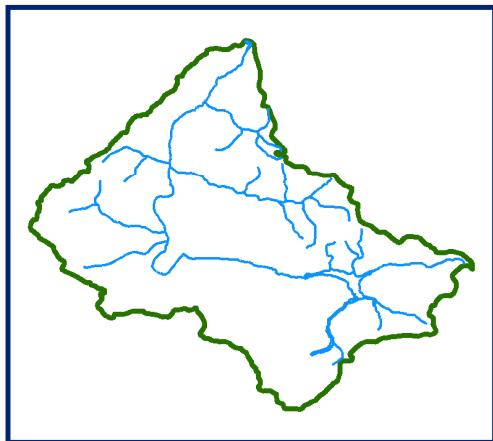
28 DECEMBER 2009



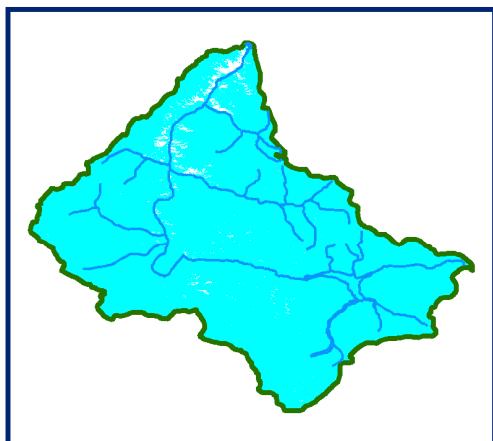
SNOW



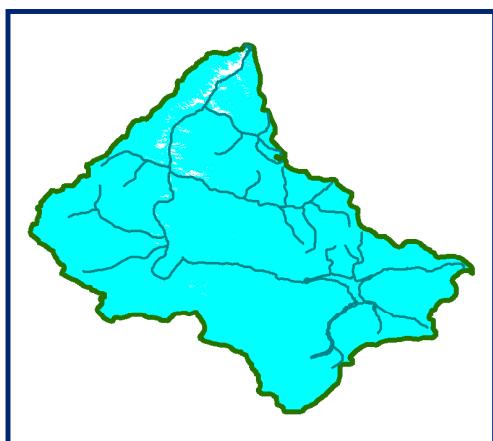
## 10 DAILY SNOW COVER MAP: SURU BASIN



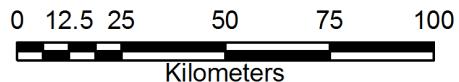
**DATA NOT AVAILABLE**



**DATA USED  
19 DECEMBER 2009**

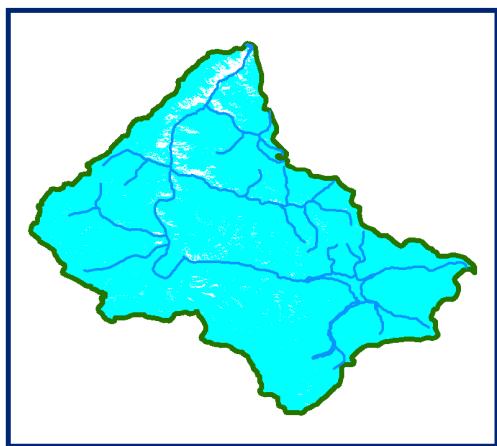


**DATA USED  
24 DECEMBER 2009**

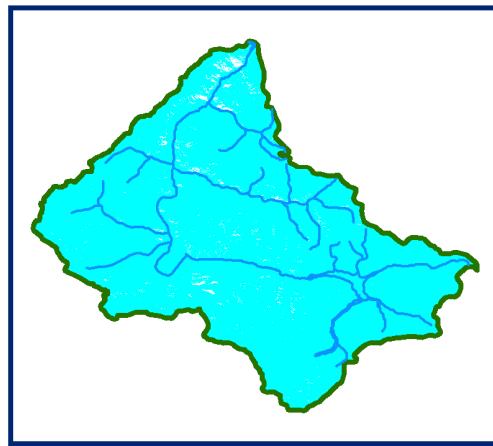


## SNOW COVER MAP:

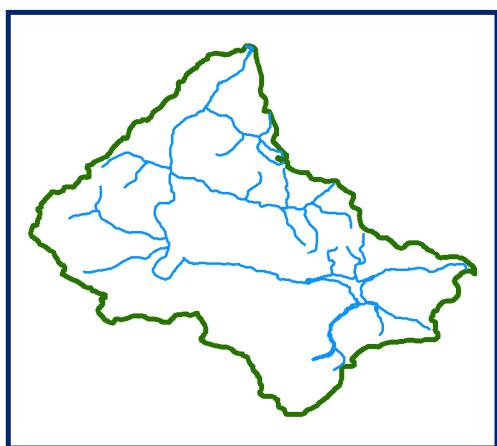
## SURU BASIN



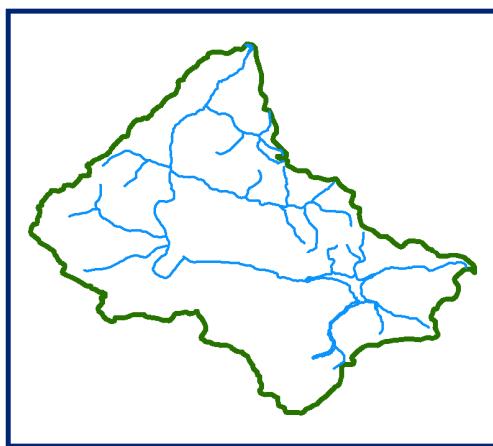
02 JANUARY 2010



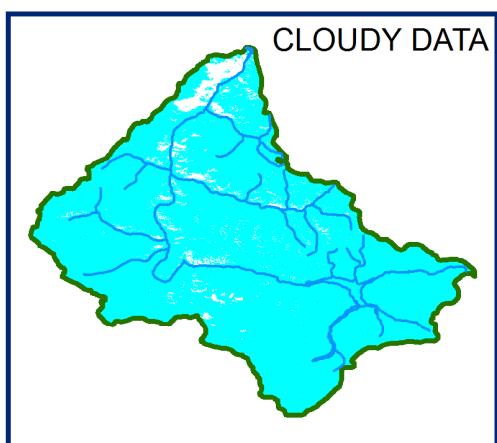
07 JANUARY 2010



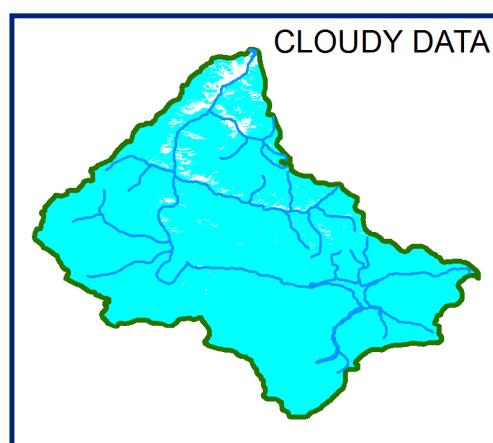
DATA NOT AVAILABLE



DATA NOT AVAILABLE



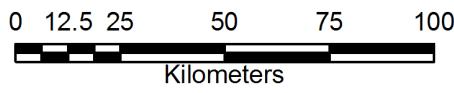
21 JANUARY 2010



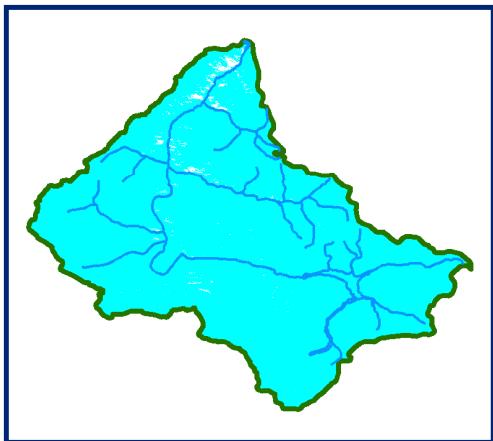
26 JANUARY 2010



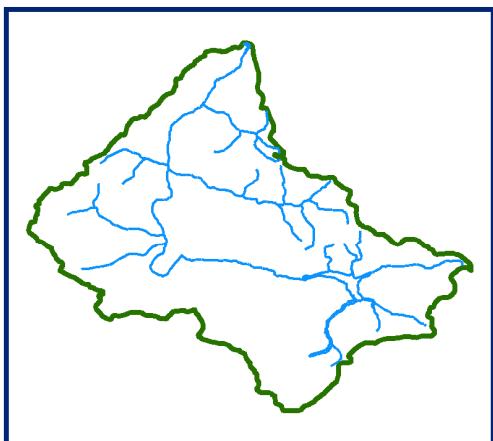
SNOW



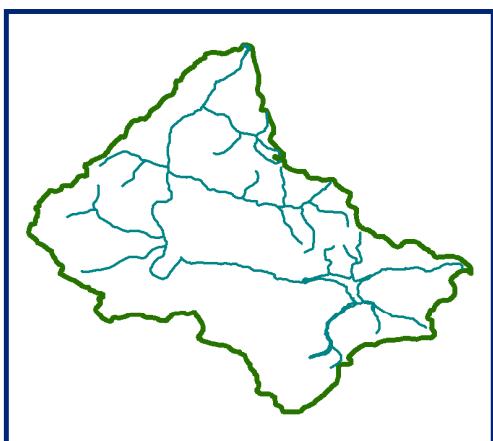
## 10 DAILY SNOW COVER MAP: SURU BASIN



DATA USED  
02 JANUARY 2010



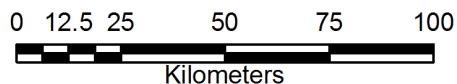
DATA NOT AVAILABLE



DATA NOT AVAILABLE

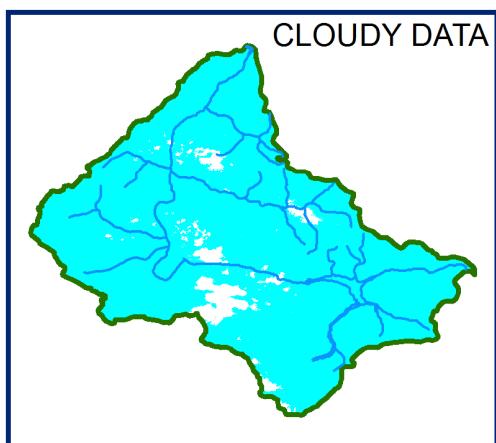


SNOW

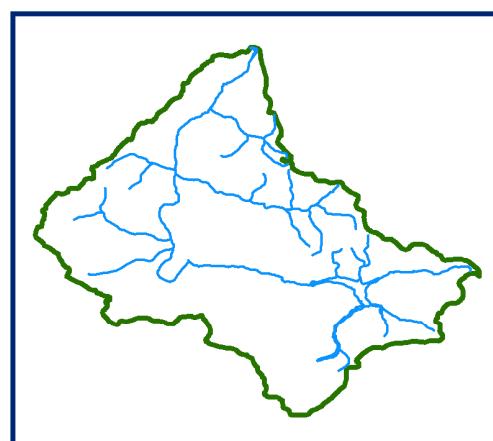
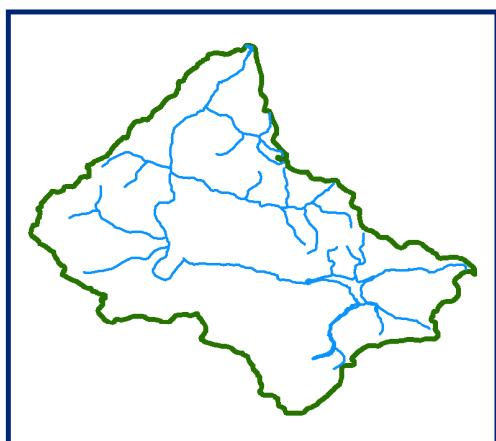
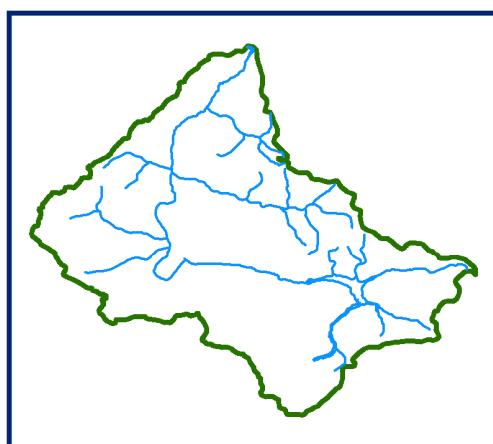
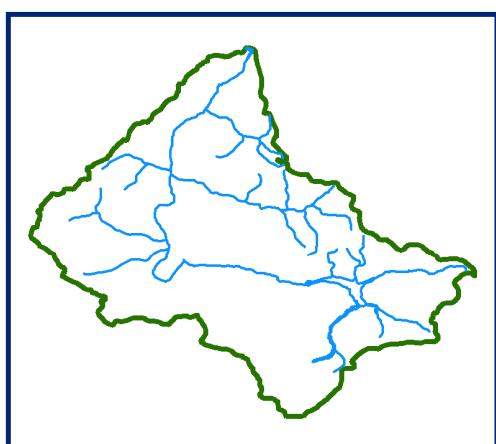
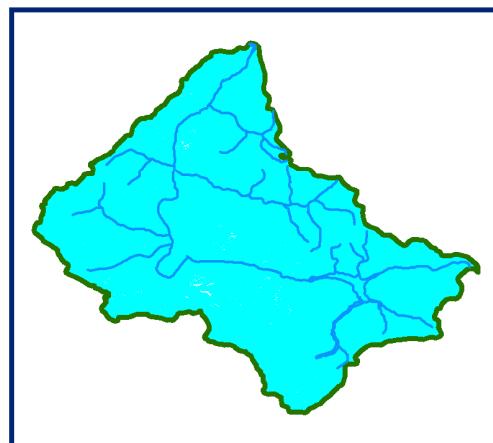


## SNOW COVER MAP:

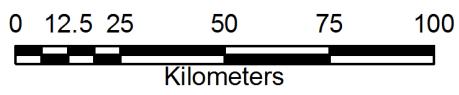
## SURU BASIN



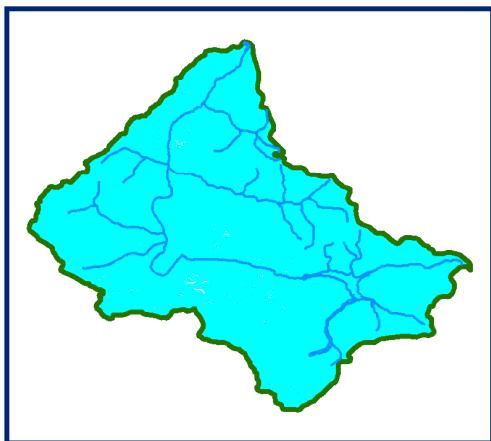
05 FEBRUARY 2010



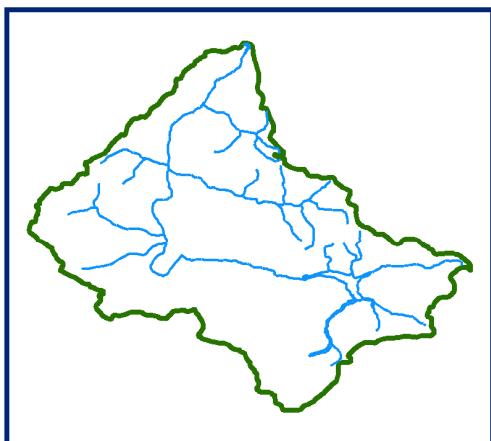
SNOW



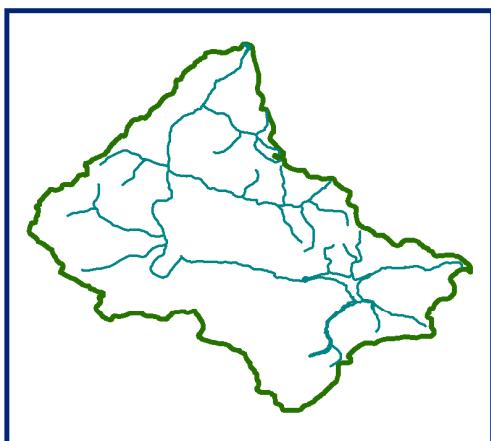
## 10 DAILY SNOW COVER MAP: SURU BASIN



DATA USED  
10 FEBRUARY 2010



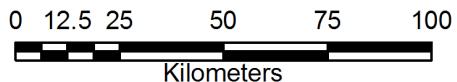
DATA NOT AVAILABLE



DATA NOT AVAILABLE

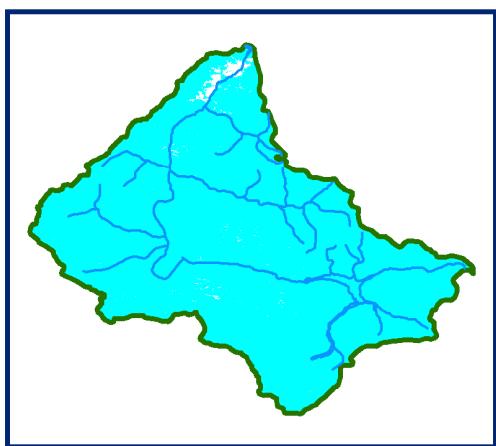


SNOW

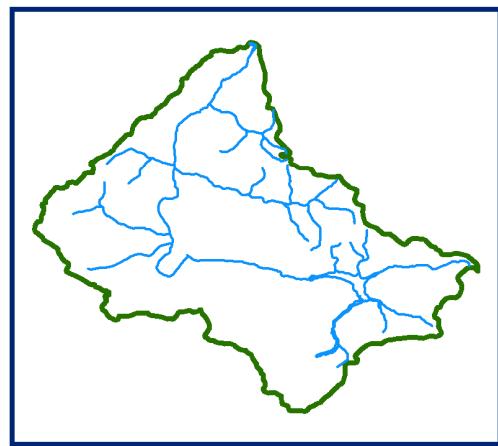


**SNOW COVER MAP:**

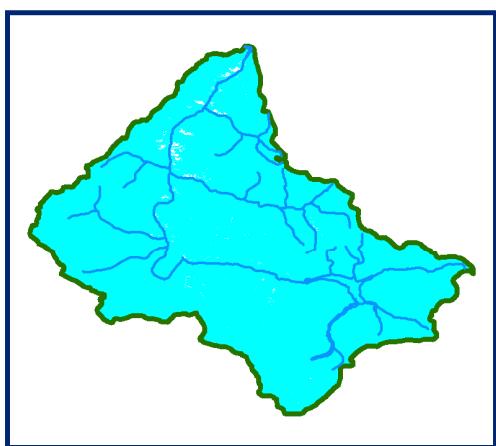
**SURU BASIN**



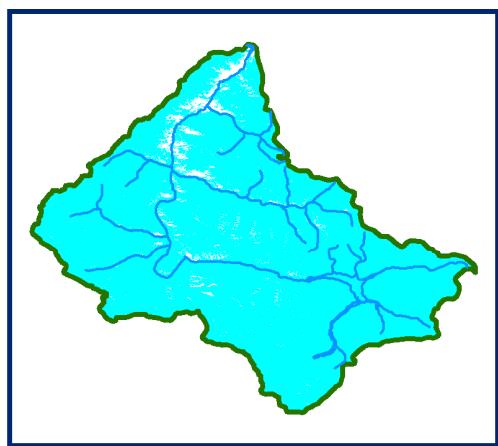
**05 MARCH 2010**



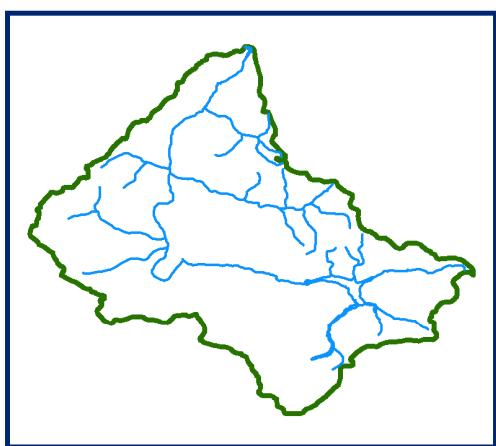
**DATA NOT AVAILABLE**



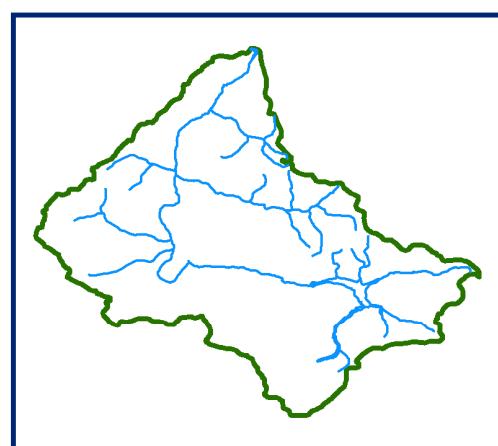
**11 MARCH 2010**



**20 MARCH 2010**



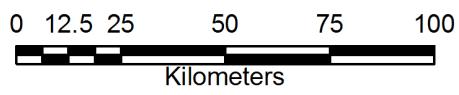
**DATA NOT AVAILABLE**



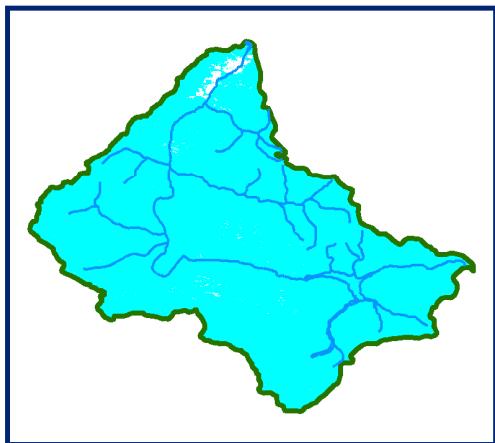
**DATA NOT AVAILABLE**



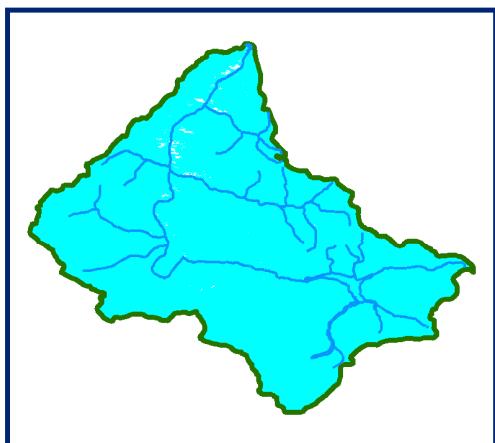
**SNOW**



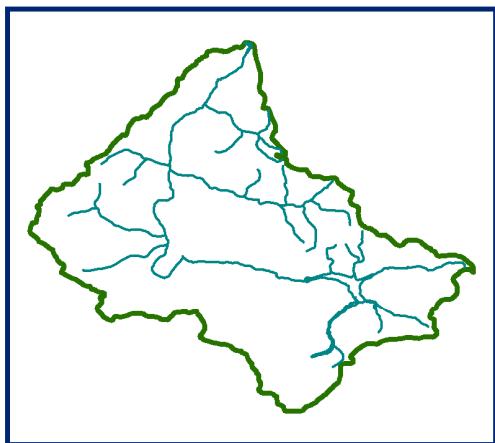
## 10 DAILY SNOW COVER MAP: SURU BASIN



DATA USED  
**05 MARCH 2010**



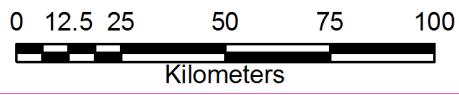
DATA USED  
**11 MARCH 2010**



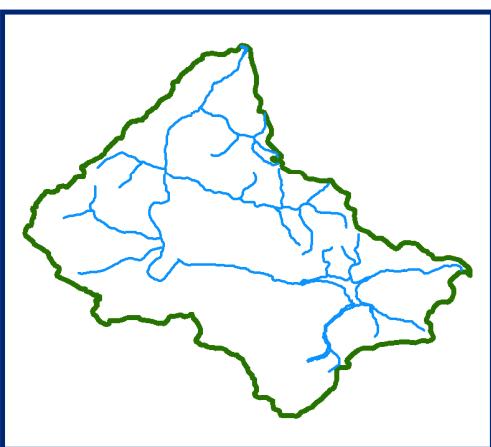
**DATA NOT AVAILABLE**



SNOW

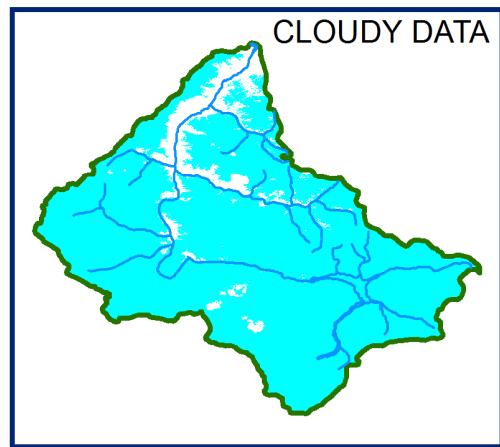


**SNOW COVER MAP:**

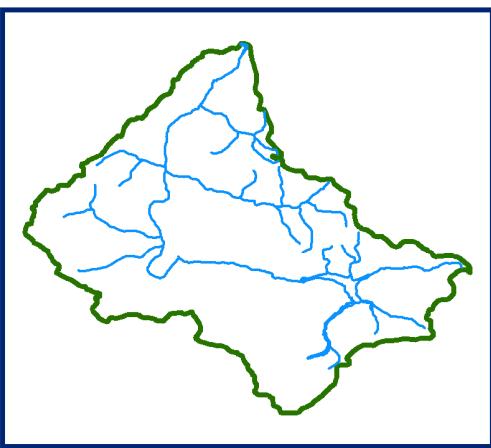


**DATA NOT AVAILABLE**

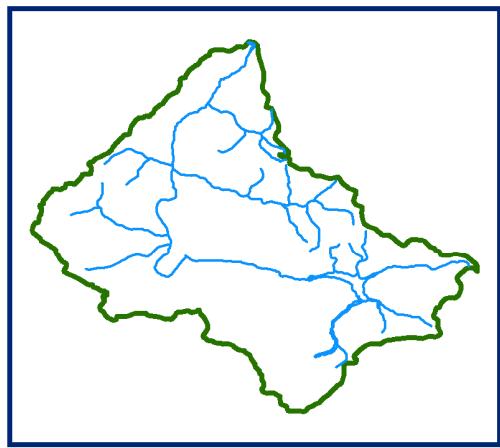
**SURU BASIN**



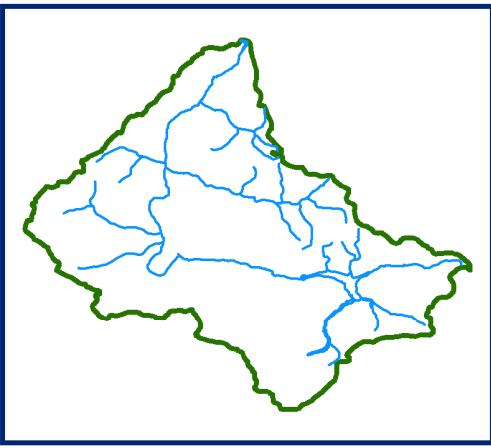
**08 APRIL 2010**



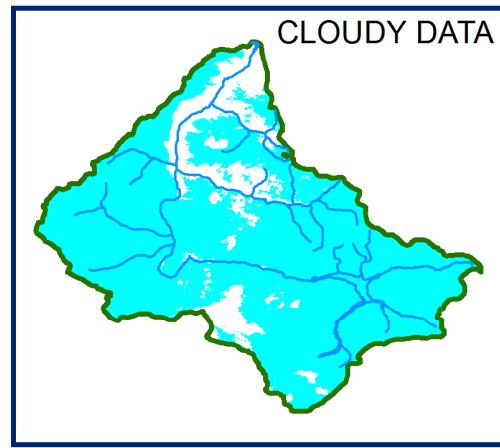
**DATA NOT AVAILABLE**



**DATA NOT AVAILABLE**



**DATA NOT AVAILABLE**



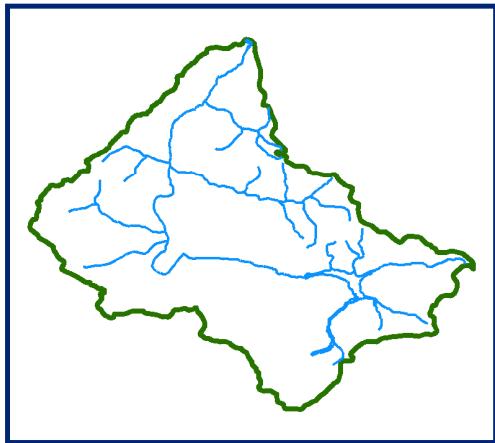
**27 APRIL 2010**



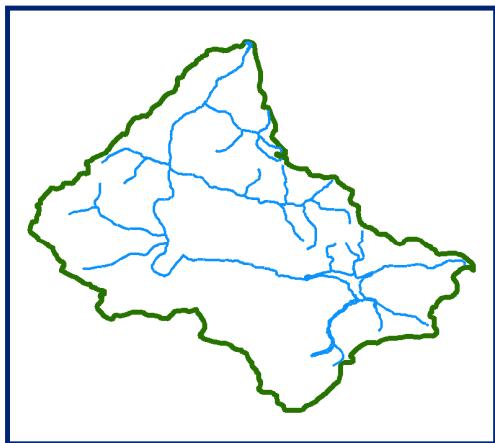
**SNOW**

0 12.5 25 50 75 100  
Kilometers

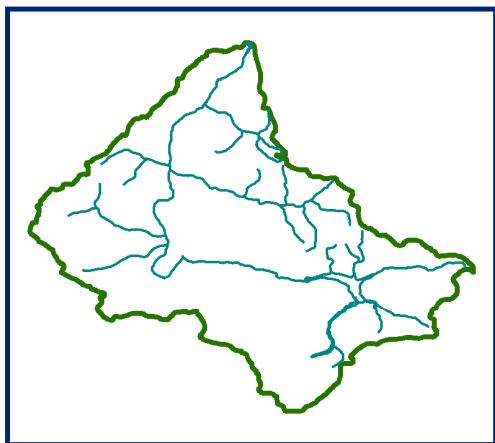
## 10 DAILY SNOW COVER MAP: SURU BASIN



DATA NOT AVAILABLE



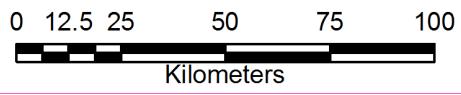
DATA NOT AVAILABLE



DATA NOT AVAILABLE



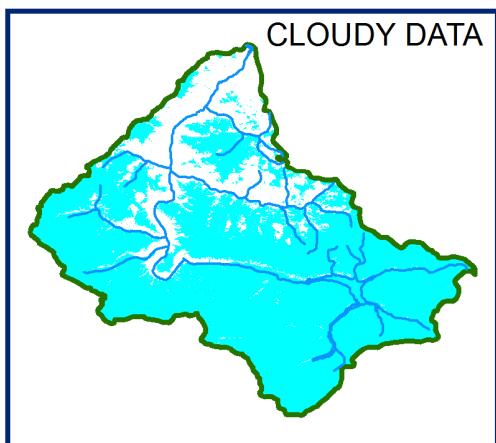
SNOW



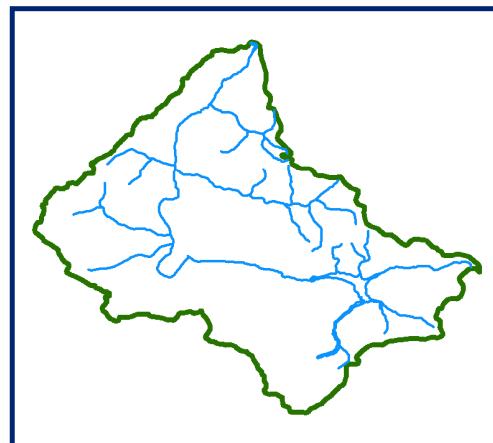
Kilometers

## SNOW COVER MAP:

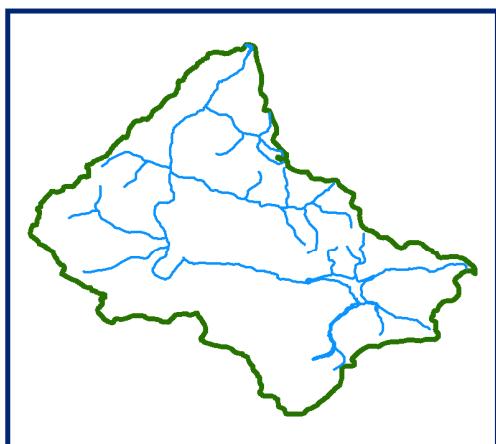
## SURU BASIN



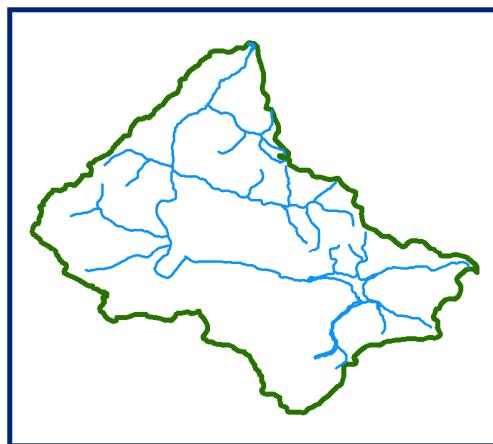
02 MAY 2010



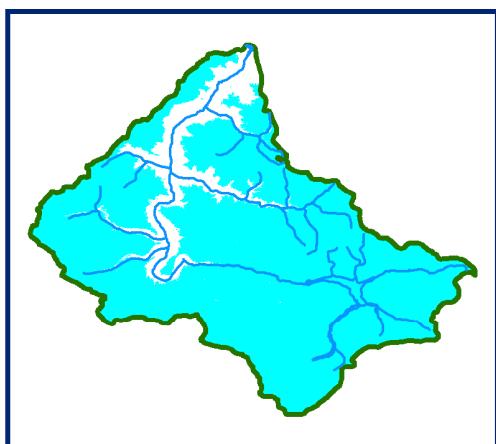
DATA NOT AVAILABLE



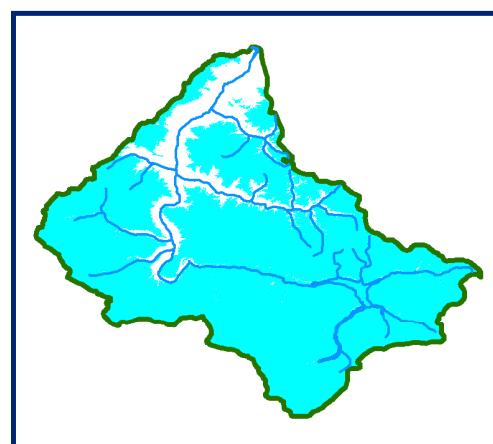
DATA NOT AVAILABLE



DATA NOT AVAILABLE



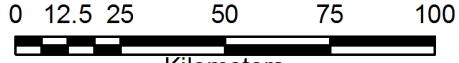
21 MAY 2010



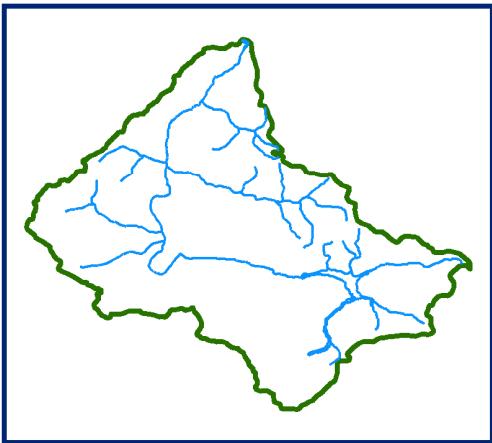
31 MAY 2010



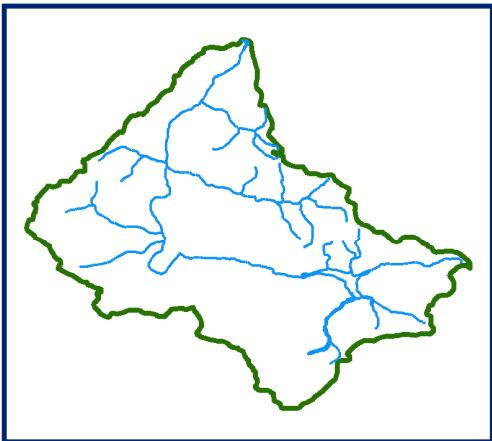
SNOW



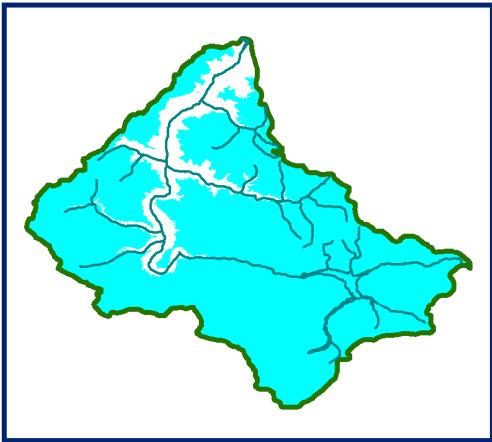
## 10 DAILY SNOW COVER MAP: SURU BASIN



DATA NOT AVAILABLE



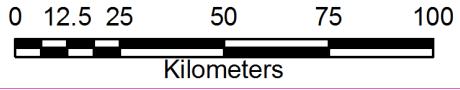
DATA NOT AVAILABLE



DATA USED  
21 MAY 2010

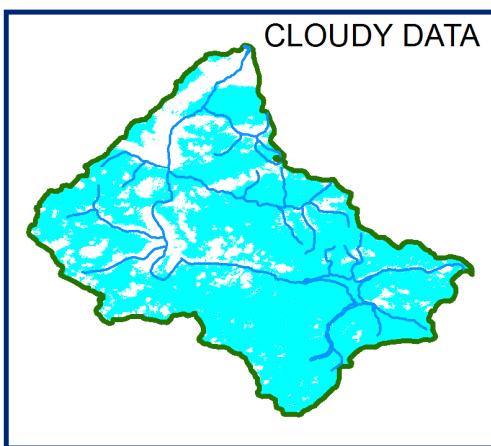
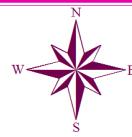


SNOW

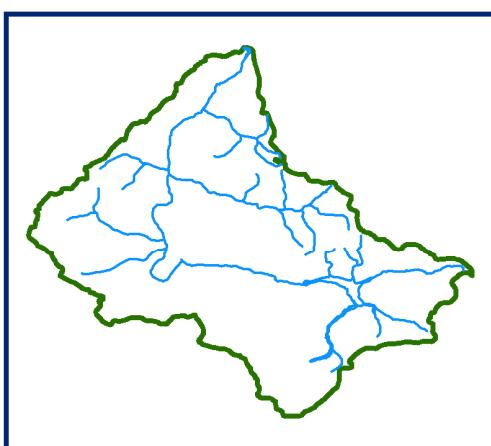
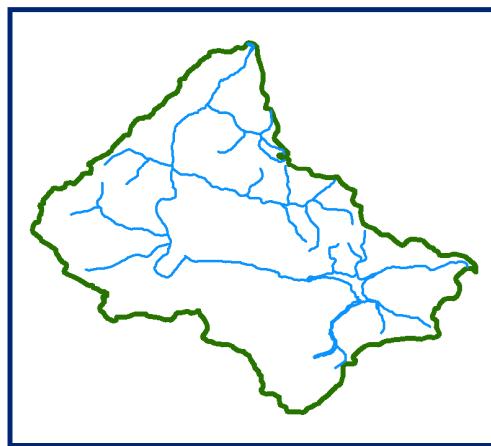


**SNOW COVER MAP:**

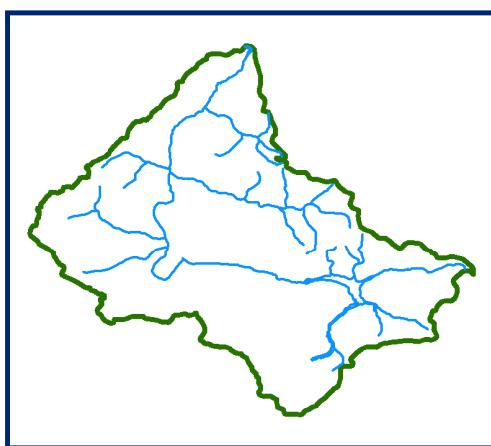
**SURU BASIN**



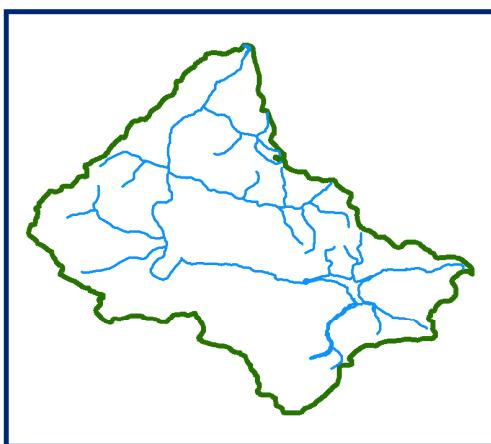
**05 JUNE 2010**



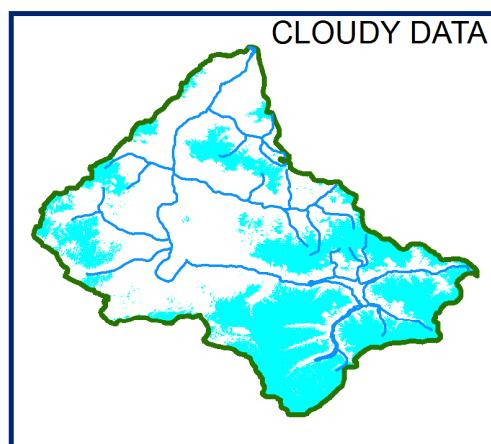
**DATA NOT AVAILABLE**



**DATA NOT AVAILABLE**



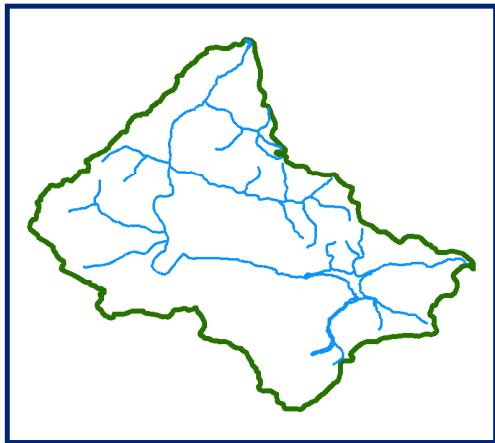
**DATA NOT AVAILABLE**



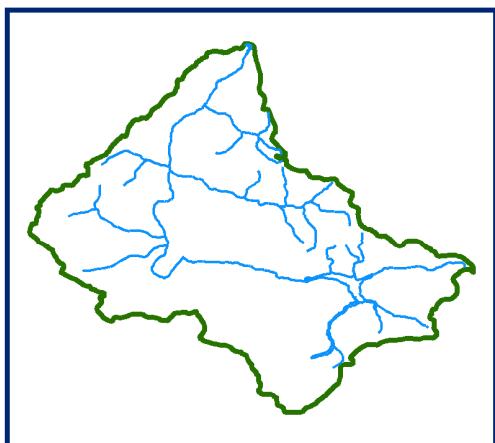
**29 JUNE 2010**



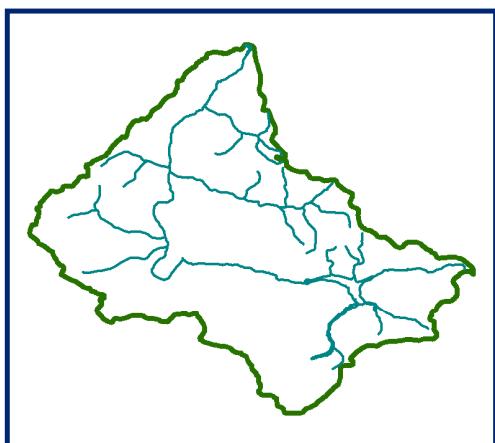
## 10 DAILY SNOW COVER MAP: SURU BASIN



DATA NOT AVAILABLE



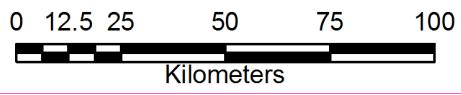
DATA NOT AVAILABLE



DATA NOT AVAILABLE



SNOW



Kilometers

### AREAL EXTENT OF SNOW (5 DAILY)

**BASIN NAME: ZASKAR**

**BASIN AREA: 14914sq km**

S No	Date	Snow cover (sq km)	Snow cover (%)	S No	Date	Snow cover (sq km)	Snow cover (%)
<b>October 2009</b>							
1	03-oct-09	1995	13	3	18-Oct-09	5364	36
2	08-oct-09	1916	13	4	22-oct-09	3709	25
<b>November 2009</b>							
1	01-nov-09	2380	16	4	15-nov-09	12948	87
2	06-nov-09	2568	17	5	25-nov-09	14578	98
3	11-nov-09	2568	17	6	30-nov-09	14498	97
<b>December 2009</b>							
1	14-dec-09	14508	97	3	24-dec-09	14285	96
2	19-dec-09	14334	96	4	29-dec-09	13650	92
<b>January 2010</b>							
1	02-Jan-10	14241	95	4	31-Jan-10	13961	94
2	8-Jan-10	14189	95	5	21-Jan-10	13969	94
3	26-Jan-10	13945	94				
<b>February 2010</b>							
1	5-Feb-10	13939	93	2	10-Feb-10	14874	100
<b>March 2010</b>							
1	11-Mar-10	14158	95				
<b>May 2010</b>							
1	21-May-10	9997	67	3	26-May-10	8478	57
2	22-May-10	9037	61	4	31-May-10	8735	59
<b>June 2010</b>							
1	1-Jun-10	7503	50	3	20-Jun-10	6320	42
2	5-Jun-10	7399	50	4	29-Jun-10	4442	30

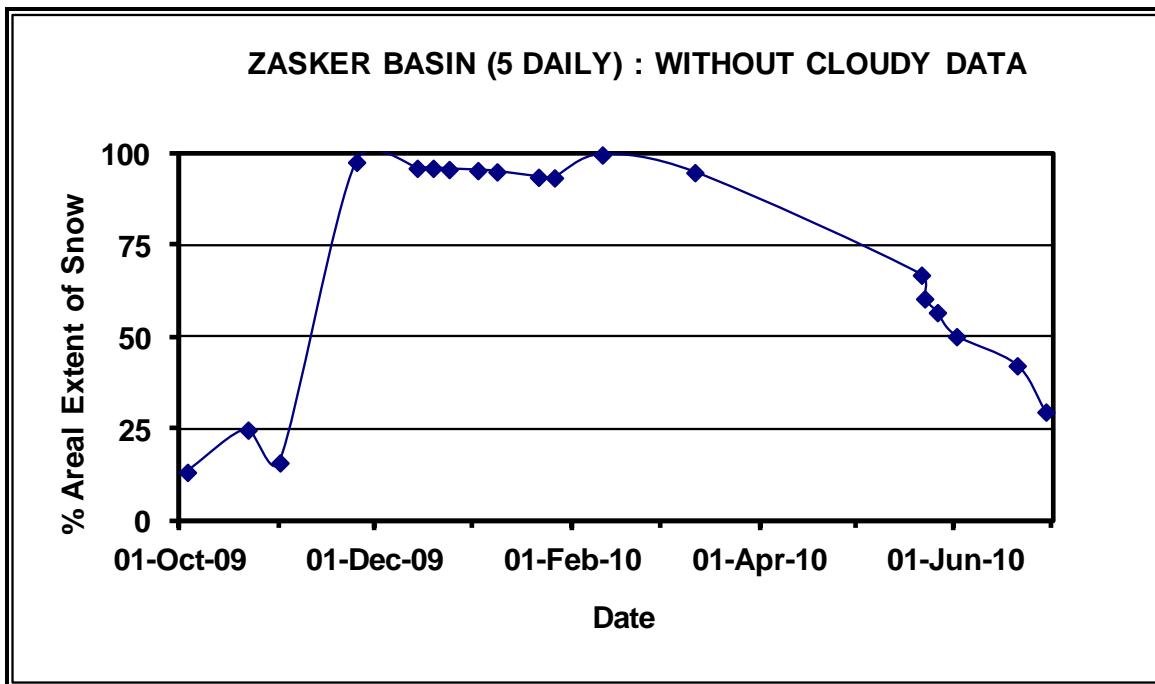
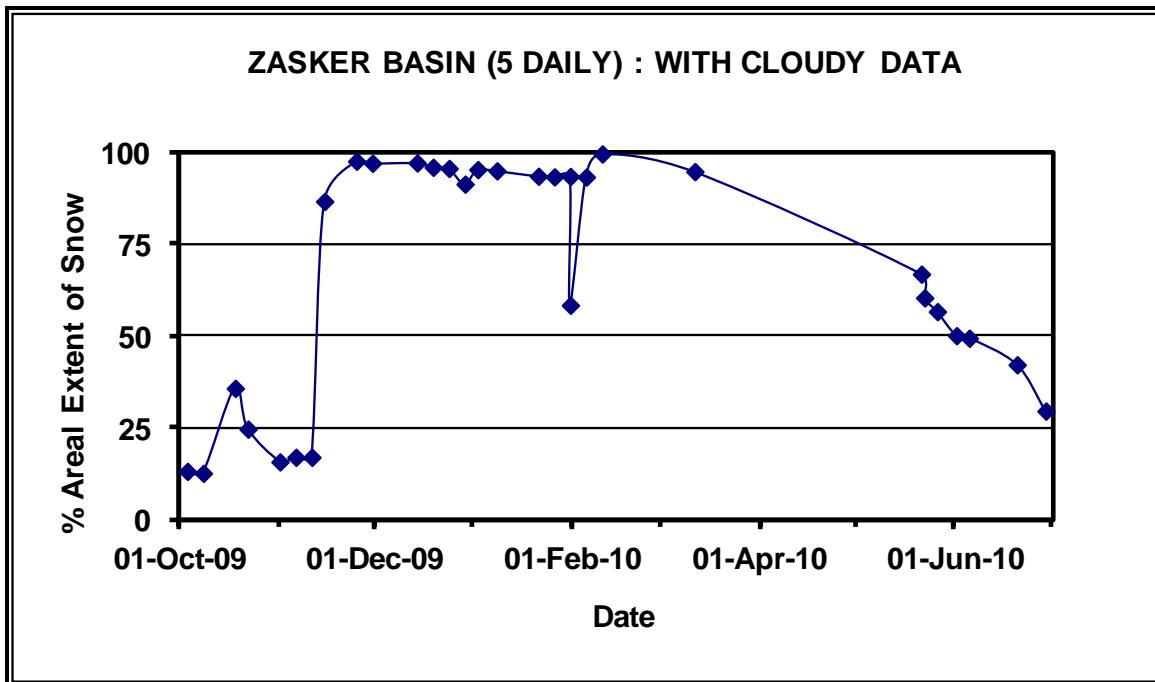
**AREAL EXTENT OF SNOW (10 DAILY)**

**BASIN NAME: ZASKER**

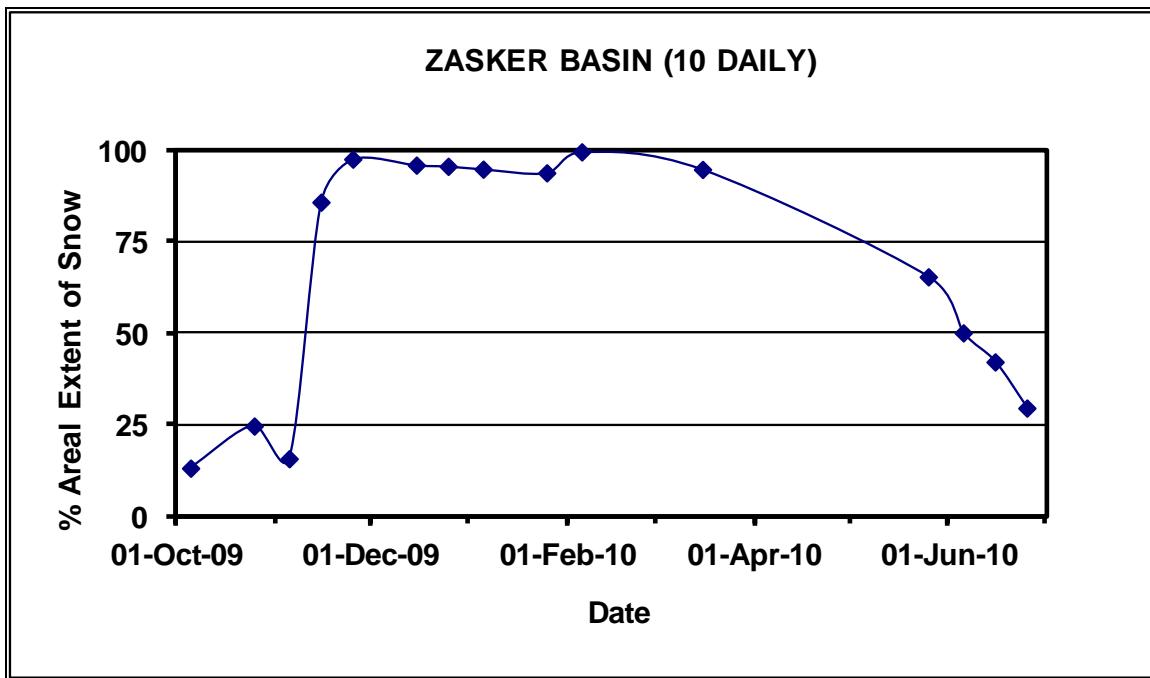
**BASIN AREA: 14914 sq km**

S No	Date	Snow cover (sq km)	Snow cover (%)	S No	Date	Snow cover (sq km)	Snow cover (%)
<b>October 2009</b>							
1	03-oct-09	1995	13	2	22-oct-09	3709	25
<b>November 2009</b>							
3	01-nov-09	2380	16	4	25-nov-09	14578	98
<b>December 2009</b>							
5	19-dec-09	14334	96	6	24-dec-09	14285	96
<b>January 2010</b>							
7	2-Jan-10	14168	95	8	21-Jan-10	14019	94
<b>February 2010</b>							
9	10-Feb-10	14874	100				
<b>March 2010</b>							
10	11-Mar-10	14158	95				
<b>May 2010</b>							
11	26-May-10	9786	66				
<b>June 2010</b>							
12	01-Jun-10	7457	50	14	29-Jun-10	4474	30
13	15-Jun-10	6264	42				

### Snow cover depletion curve



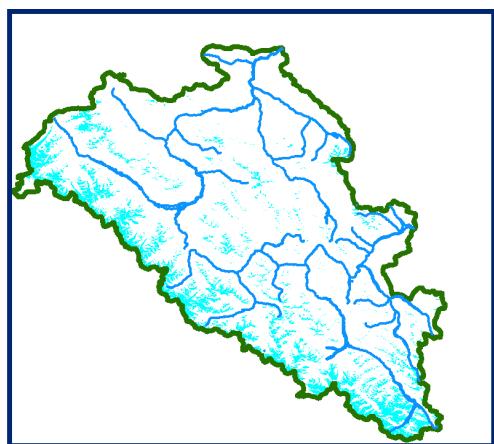
### Snow cover depletion curve



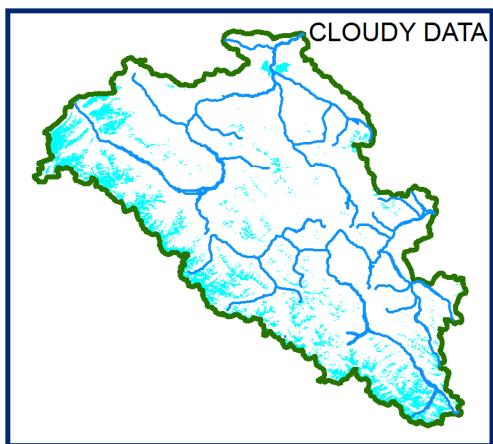
# *SNOW COVER MAP*

## SNOW COVER MAP:

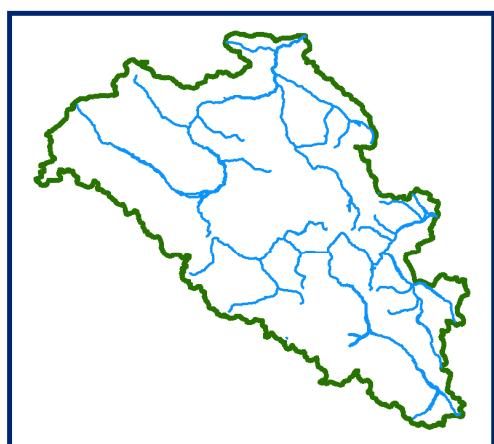
## ZASKER BASIN



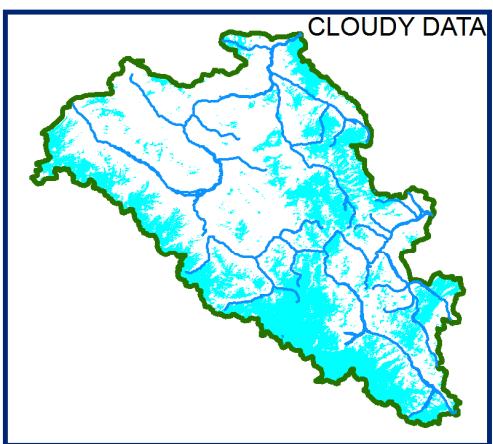
03 OCTOBER 2009



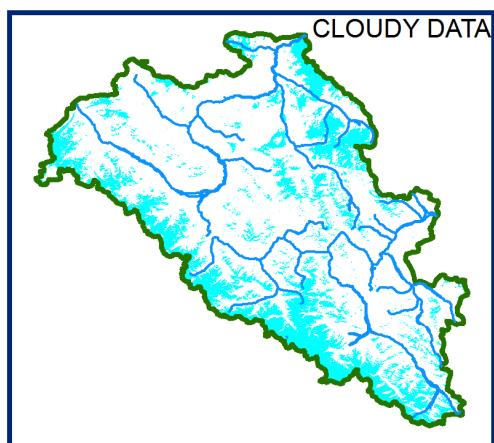
08 OCTOBER 2009



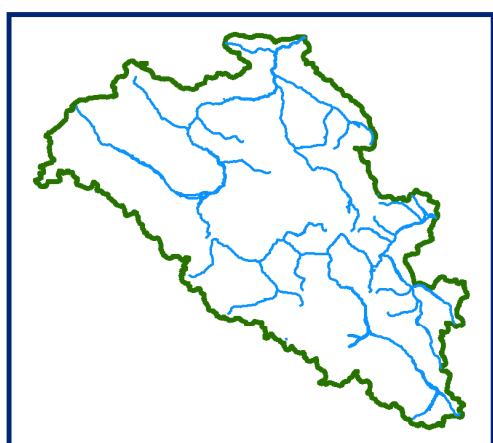
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18 OCTOBER 2009



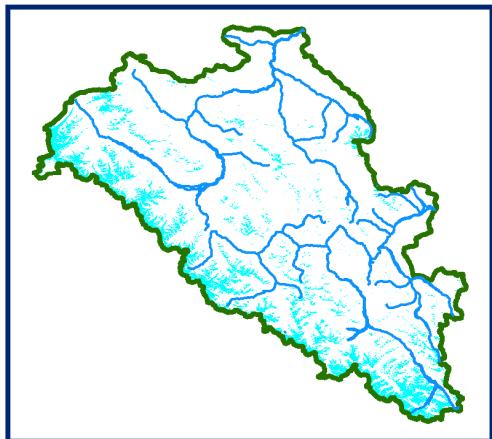
22 OCTOBER 2009



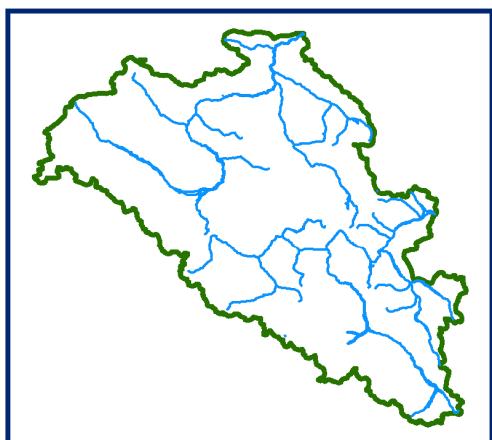
DATA NOT AVAILABLE



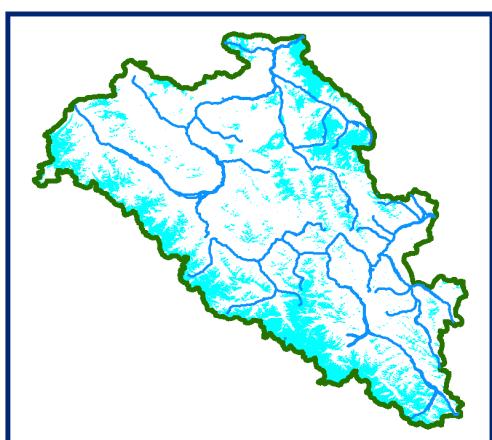
# 10 DAILY SNOW COVER MAP: ZASKER BASIN



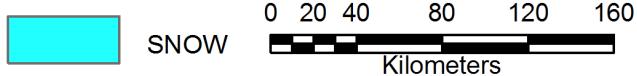
DATA USED  
03 OCTOBER 2009



DATA NOT AVAILABLE



DATA USED  
18 OCTOBER 2009  
22 OCTOBER 2009

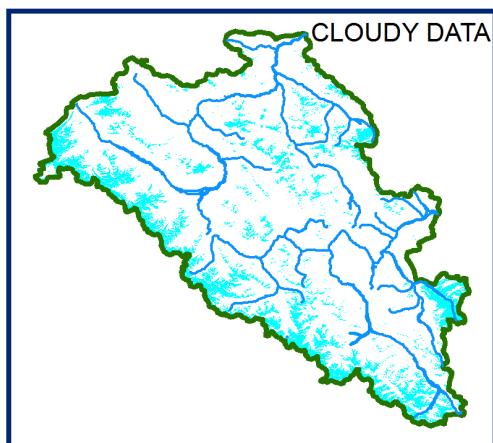


**SNOW COVER MAP:**

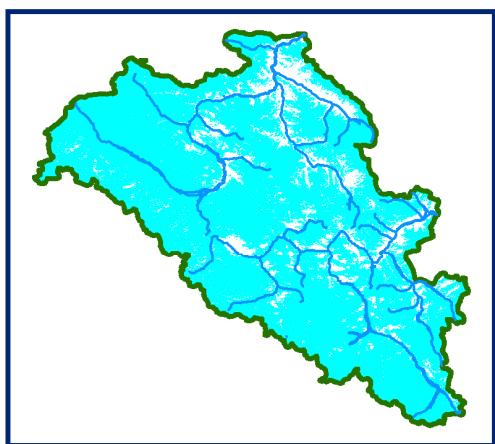
**ZASKER BASIN**



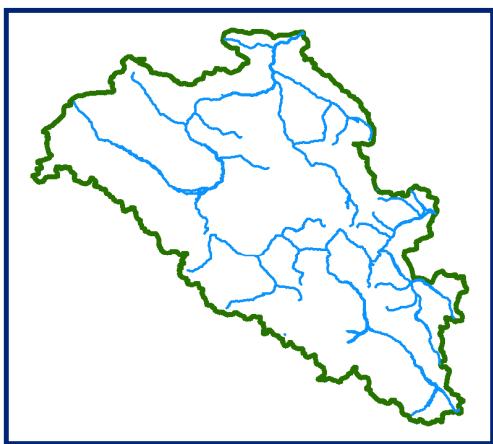
**01 NOVEMBER 2009**



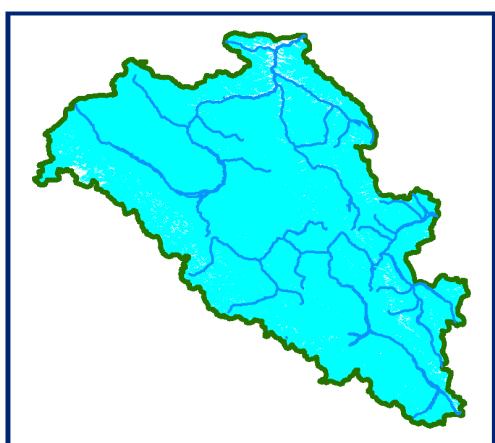
**06 NOVEMBER 2009**



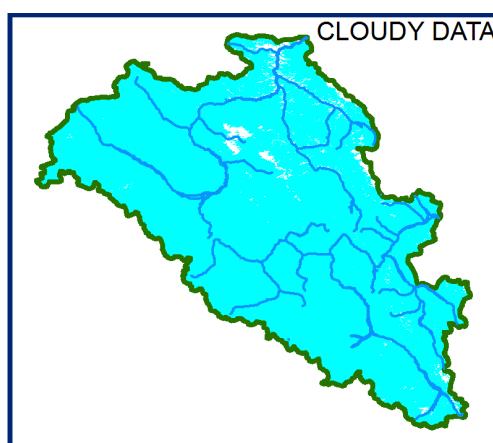
**11 NOVEMBER 2009**



**DATA NOT AVAILABLE**



**25 NOVEMBER 2009**



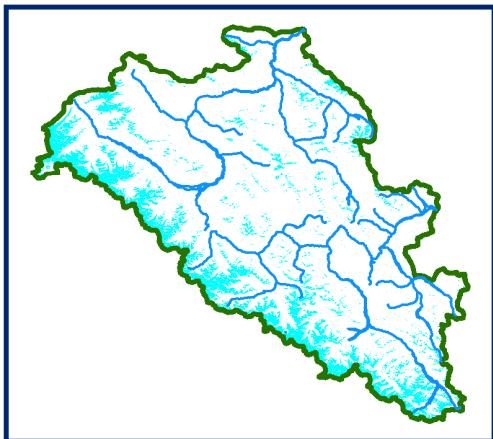
**30 NOVEMBER 2009**



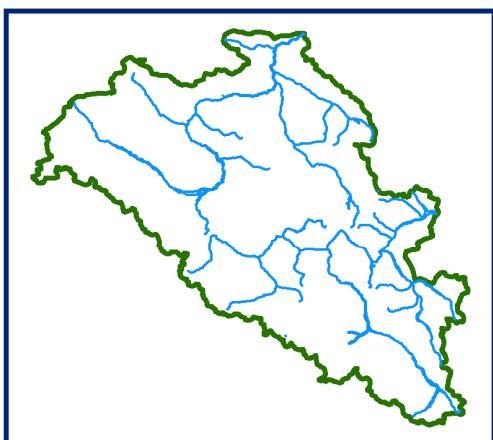
**SNOW**



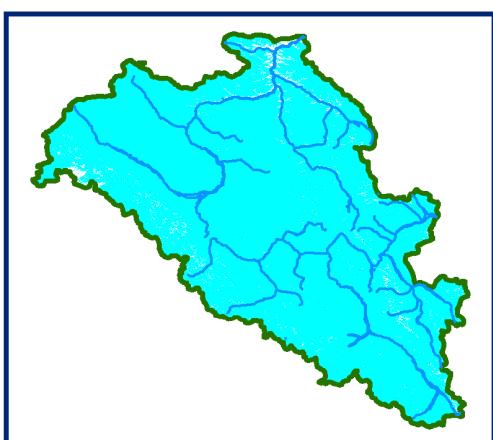
## 10 DAILY SNOW COVER MAP: ZASKER BASIN



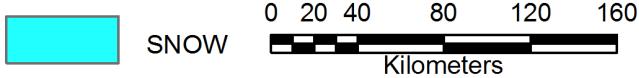
DATA USED  
**01 NOVEMBER 2009**



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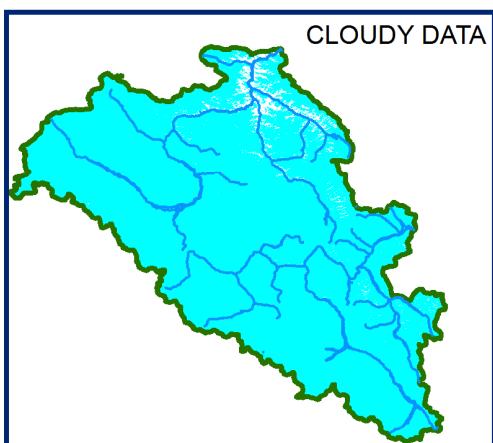


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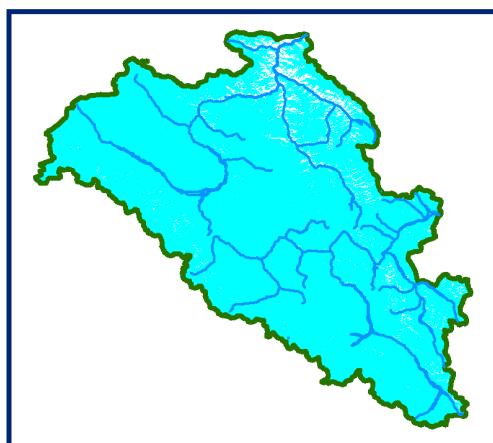


## SNOW COVER MAP:

## ZASKER BASIN



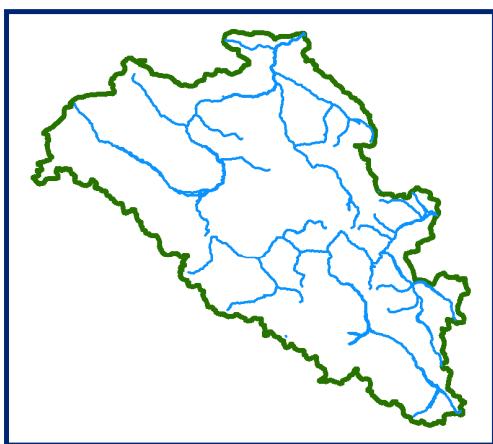
14 DECEMBER 2009



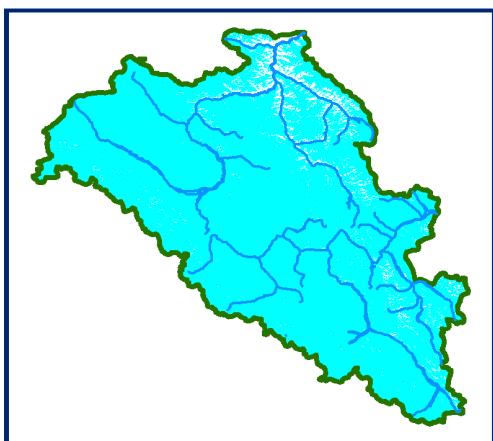
19 DECEMBER 2009



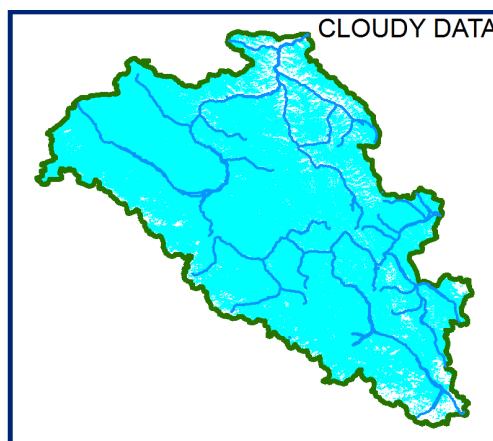
DATA NOT AVAILABLE



DATA NOT AVAILABLE



24 DECEMBER 2009



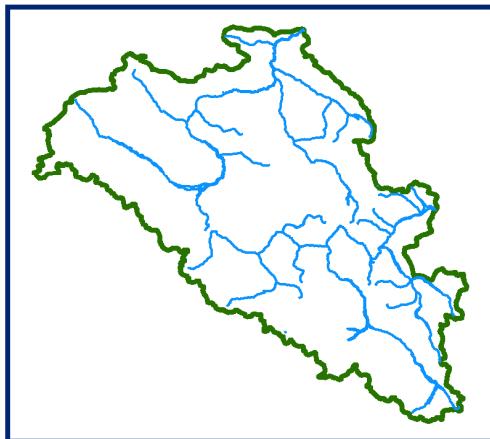
29 DECEMBER 2009



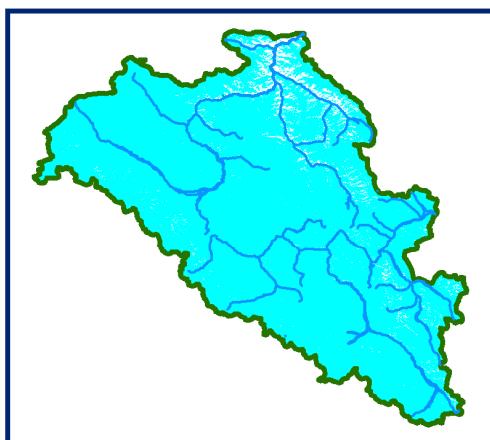
SNOW



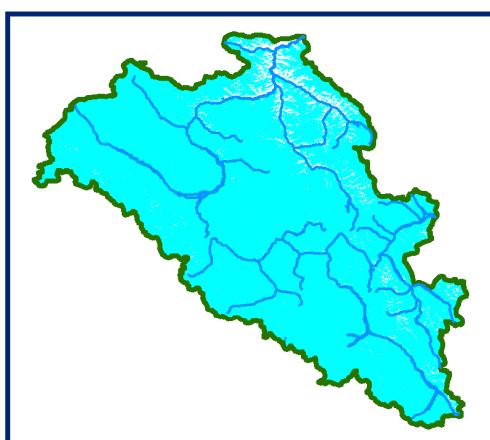
## 10 DAILY SNOW COVER MAP: ZASKER BASIN



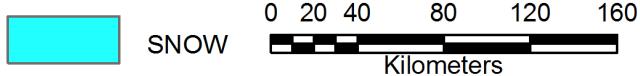
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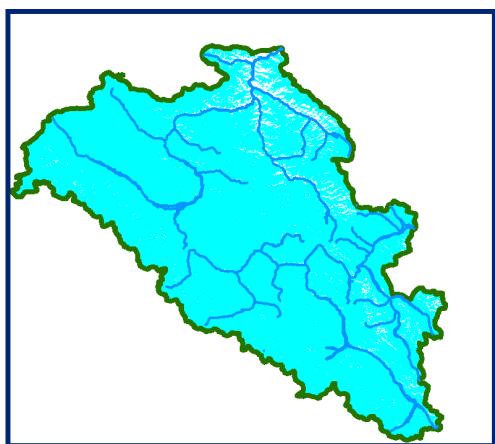


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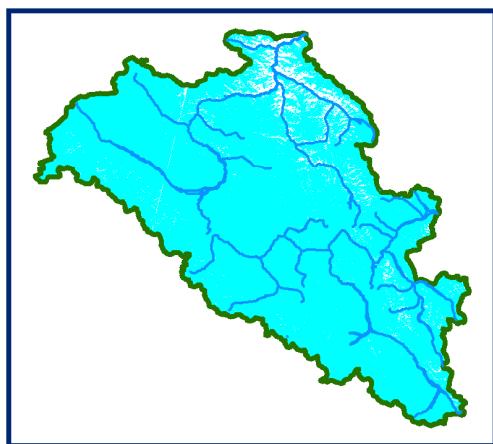


## SNOW COVER MAP:

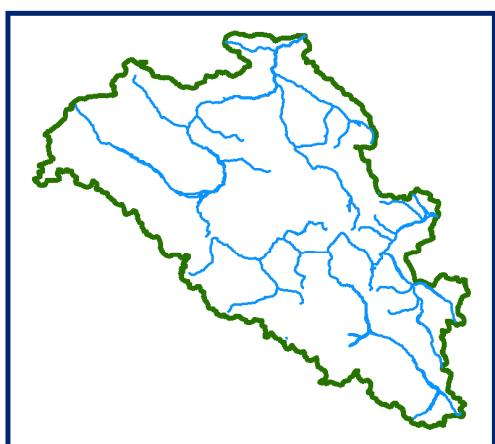
## ZASKER BASIN



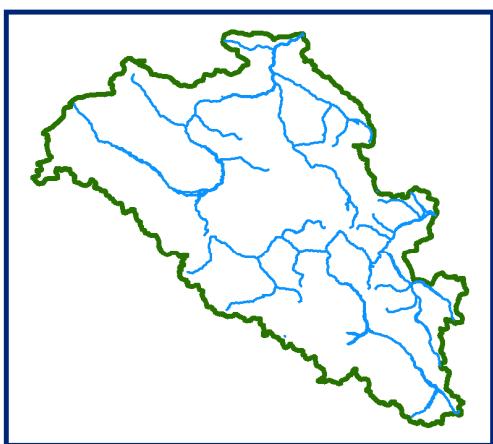
02 JANUARY 2010



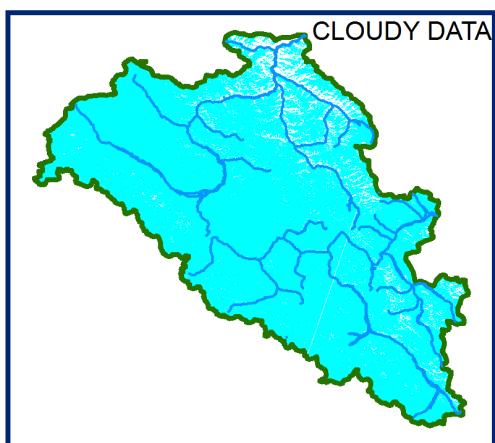
08 JANUARY 2010



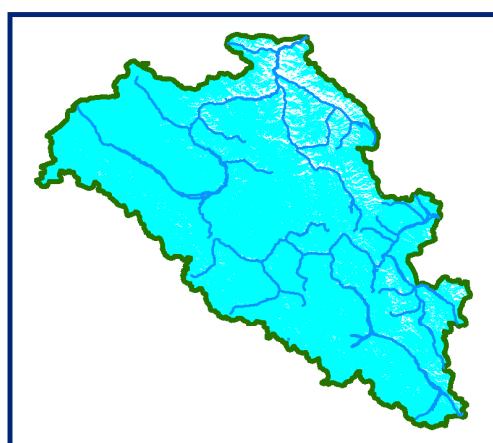
CLOUDY DATA



DATA NOT AVAILABLE



21 JANUARY 2010



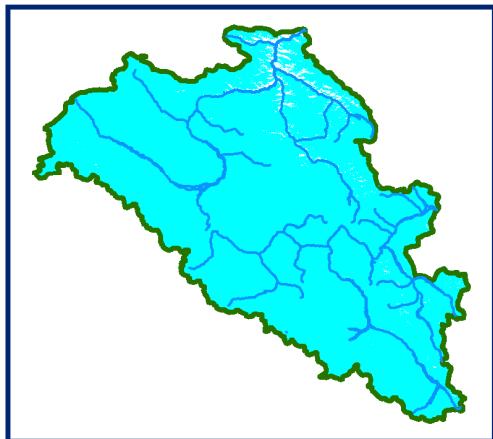
26 JANUARY 2010



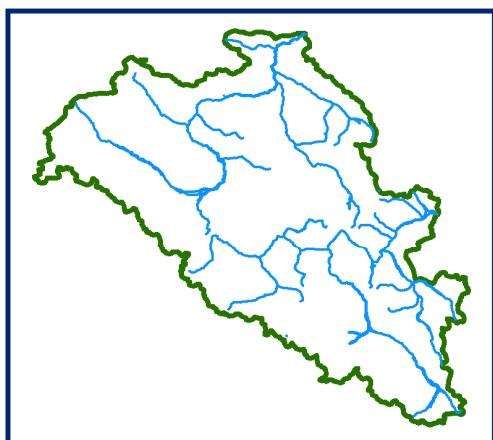
SNOW



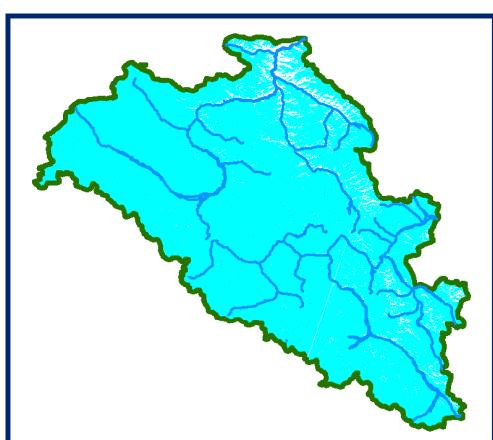
## 10 DAILY SNOW COVER MAP: ZASKER BASIN



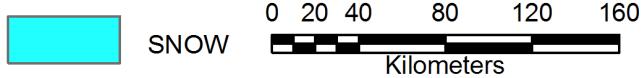
DATA USED  
**02 JANUARY 2010**  
**07 JANUARY 2010**



**DATA NOT AVAILABLE**

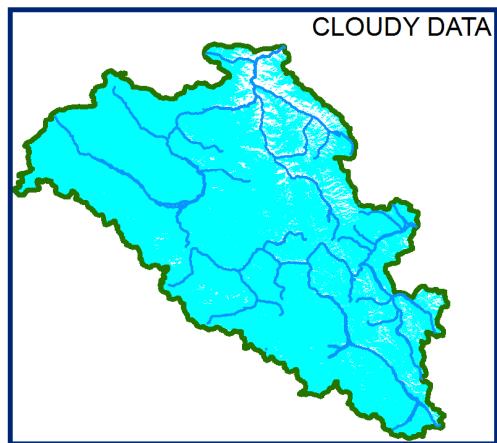


DATA USED  
**21 JANUARY 2010**  
**26 JANUARY 2010**

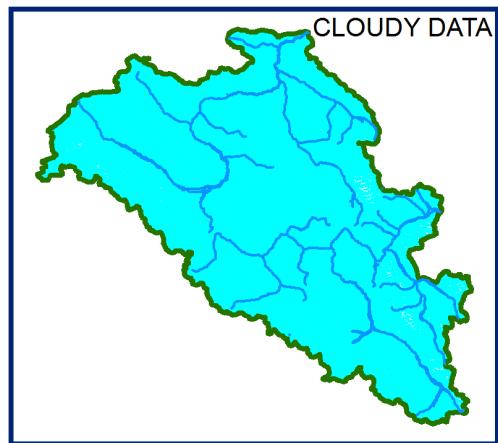


## SNOW COVER MAP:

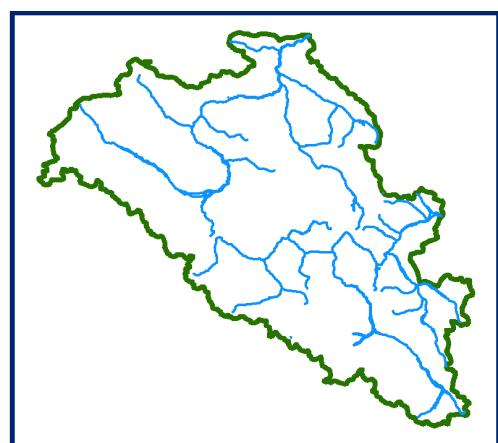
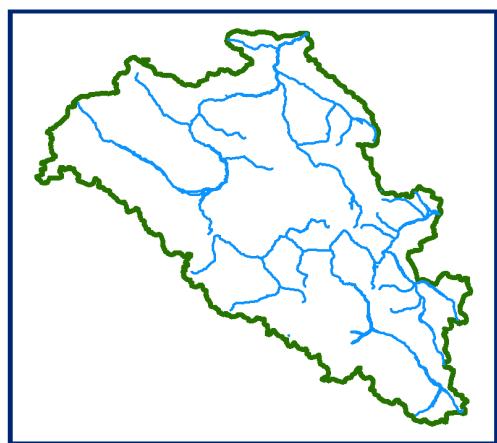
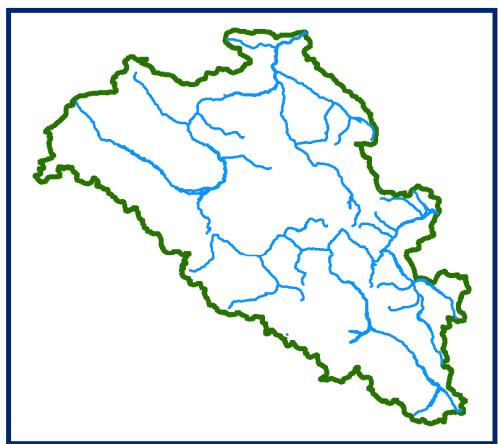
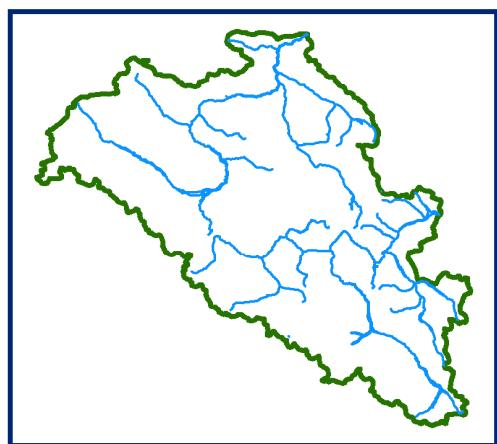
## ZASKER BASIN



05 FEBRUARY 2010



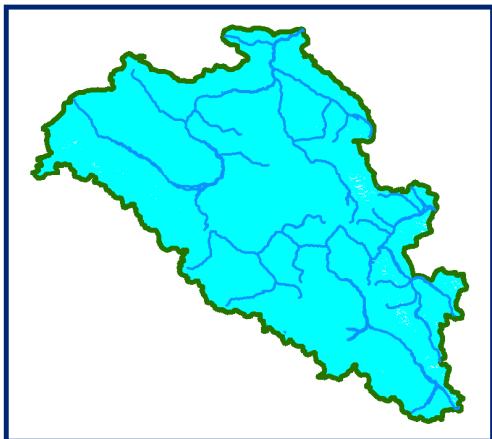
10 FEBRUARY 2010



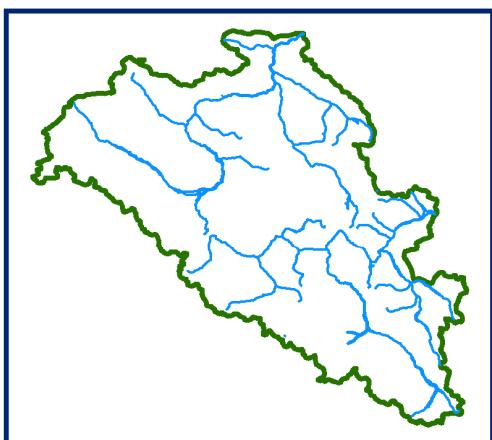
SNOW



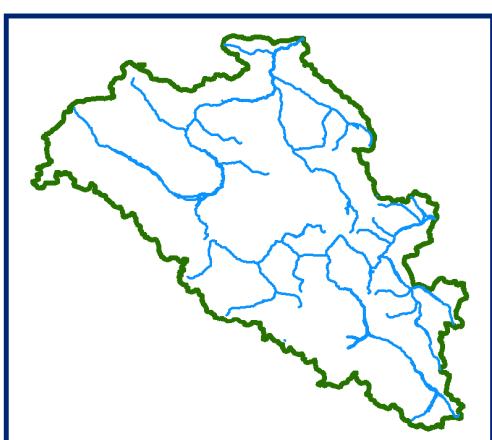
## 10 DAILY SNOW COVER MAP: ZASKER BASIN



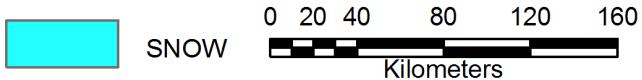
DATA USED  
10 FEBRUARY 2010



DATA NOT AVAILABLE

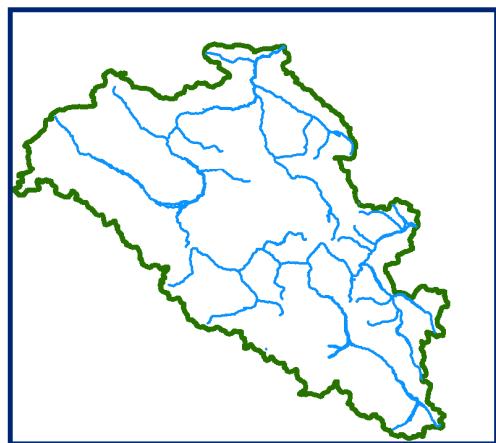


DATA NOT AVAILABLE

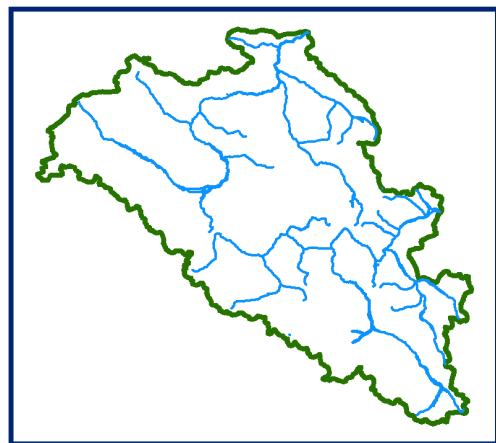


**SNOW COVER MAP:**

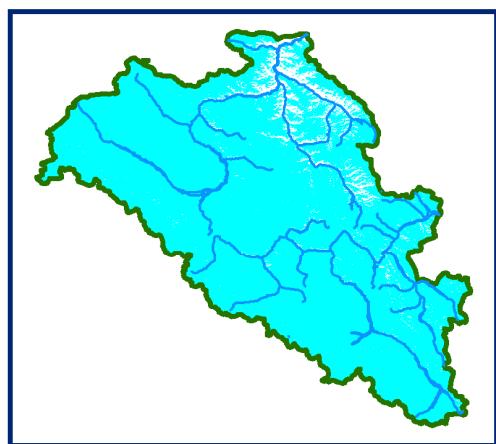
**ZASKER BASIN**



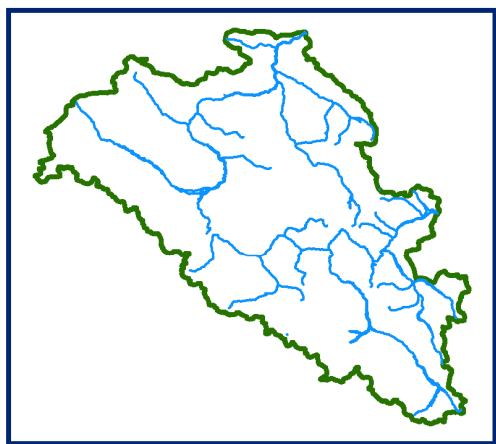
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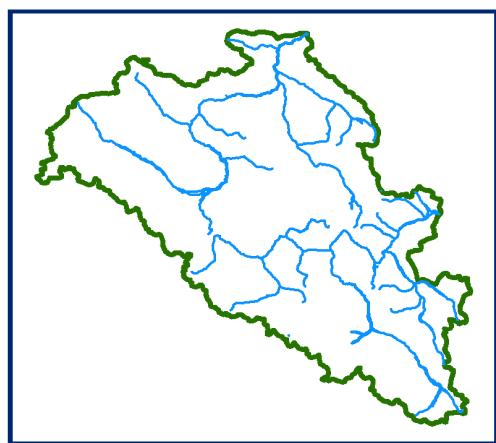
**DATA NOT AVAILABLE**



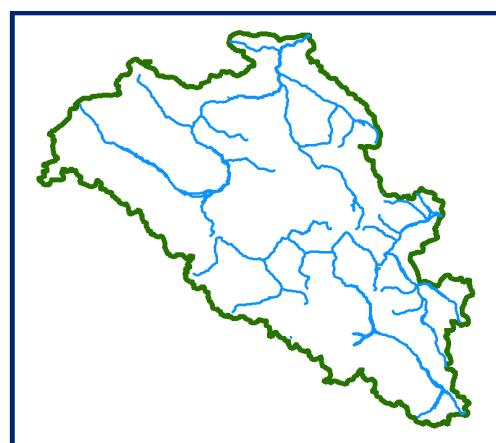
**11 MARCH 2010**



**DATA NOT AVAILABLE**



**DATA NOT AVAILABLE**



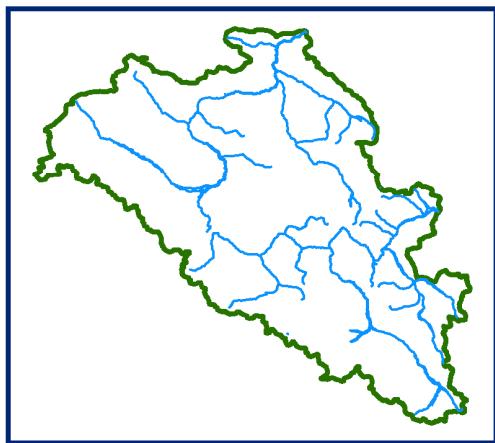
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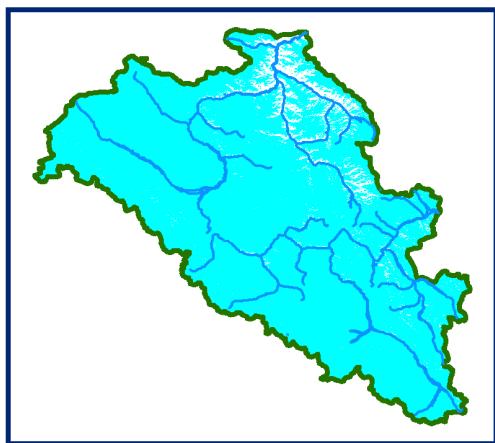
**SNOW**



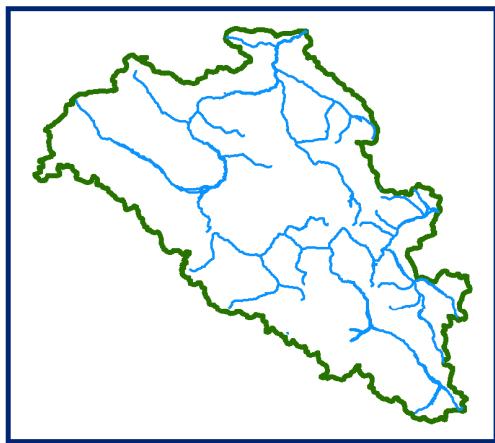
## 10 DAILY SNOW COVER MAP: ZASKER BASIN



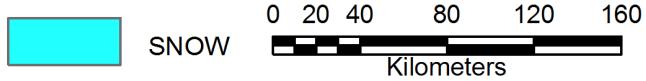
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**DATA USED  
11 MARCH 2010**

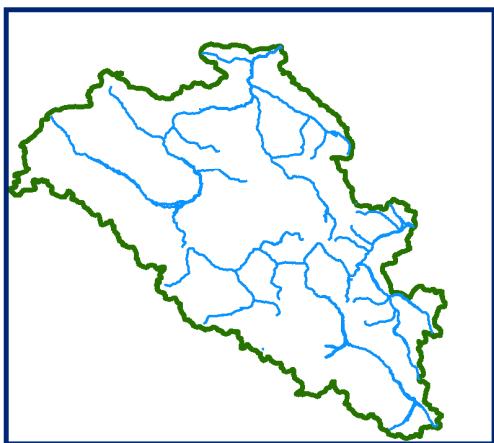


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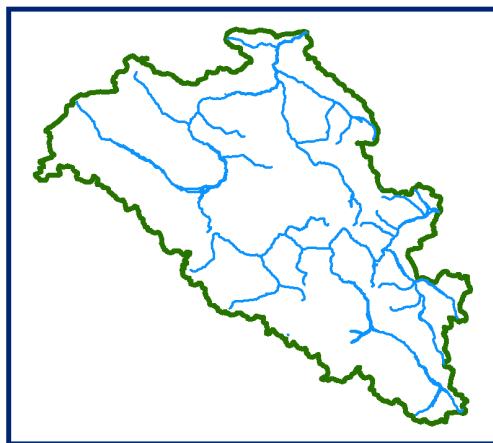


## SNOW COVER MAP:

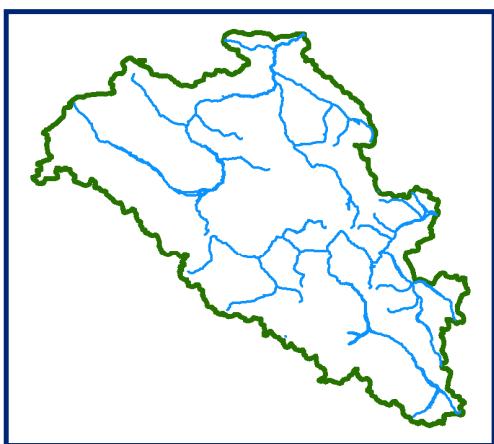
## ZASKER BASIN



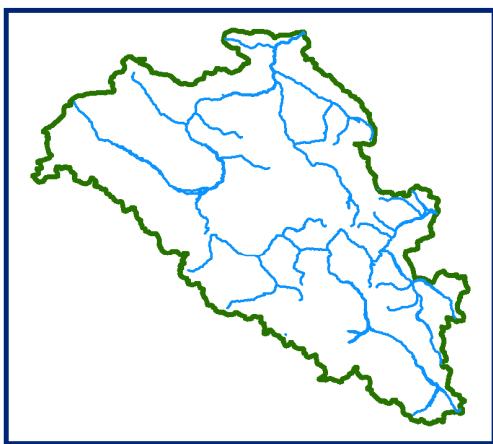
DATA NOT AVAILABLE



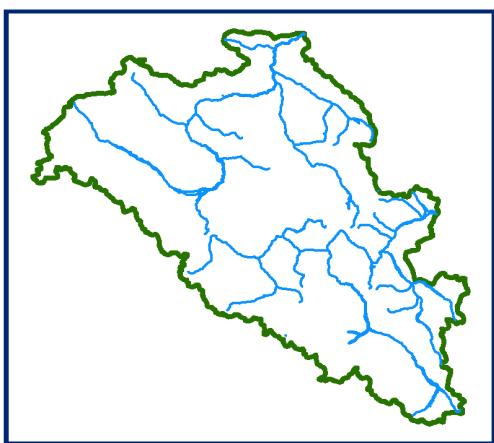
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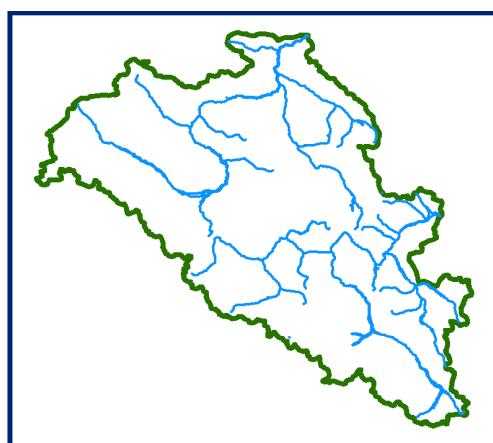
DATA NOT AVAILABLE



DATA NOT AVAILABLE



DATA NOT AVAILABLE



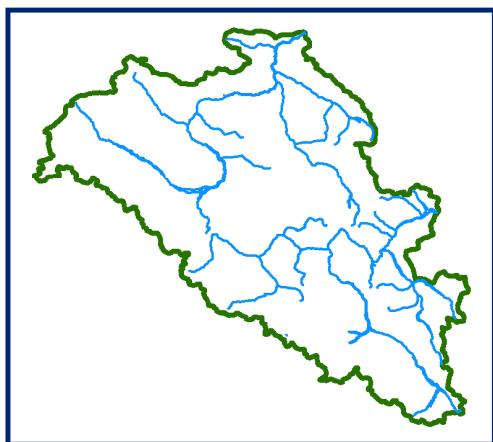
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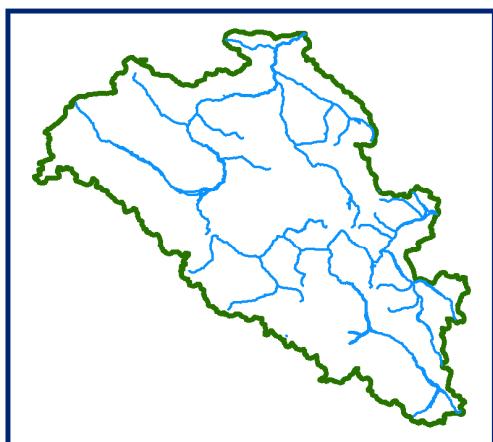
SNOW



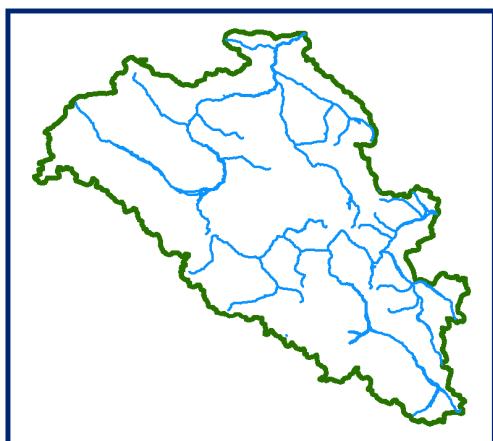
## 10 DAILY SNOW COVER MAP: ZASKER BASIN



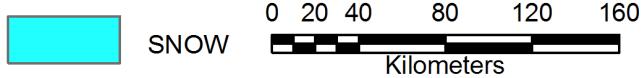
DATA NOT AVAILABLE



DATA NOT AVAILABLE

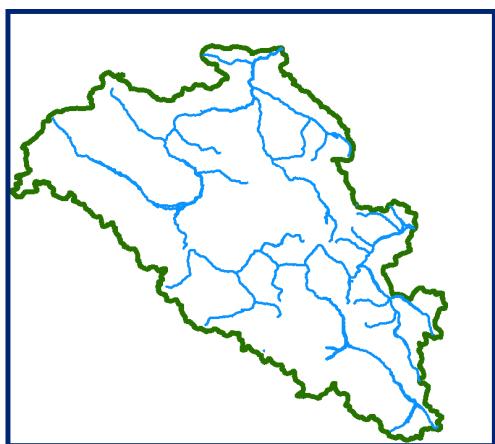


DATA NOT AVAILABLE

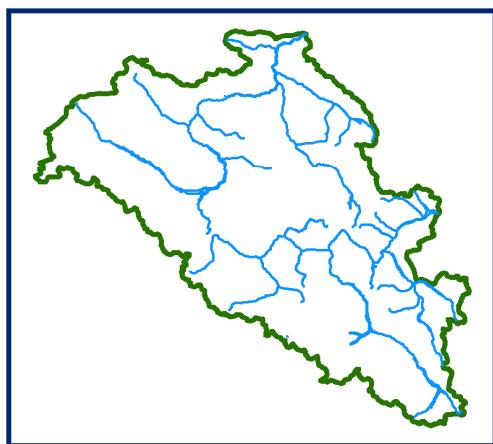


## SNOW COVER MAP:

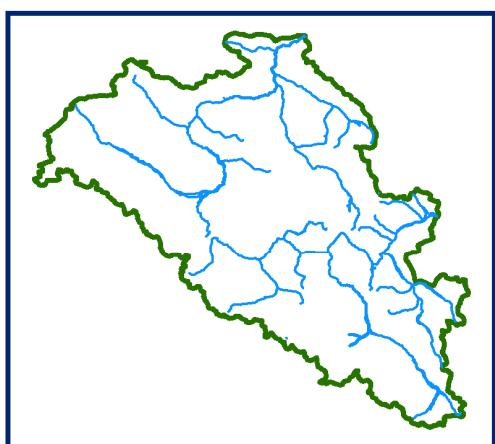
## ZASKER BASIN



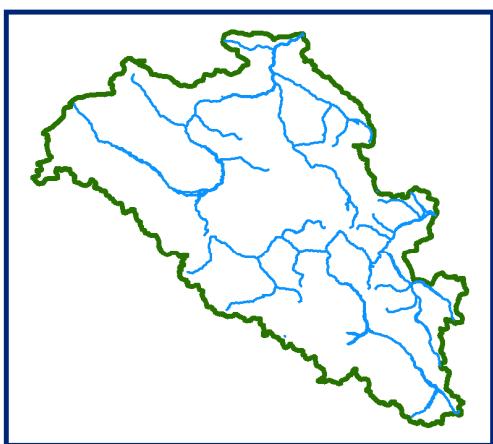
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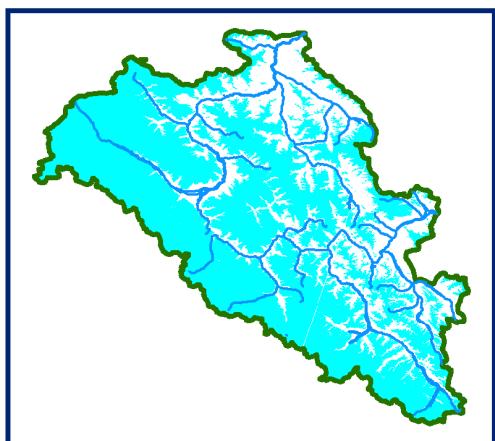
DATA NOT AVAILABLE



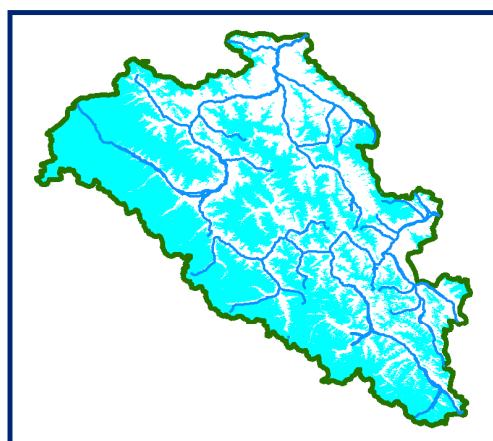
DATA NOT AVAILABLE



DATA NOT AVAILABLE



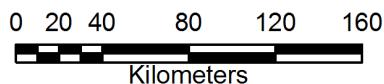
21 MAY 2010



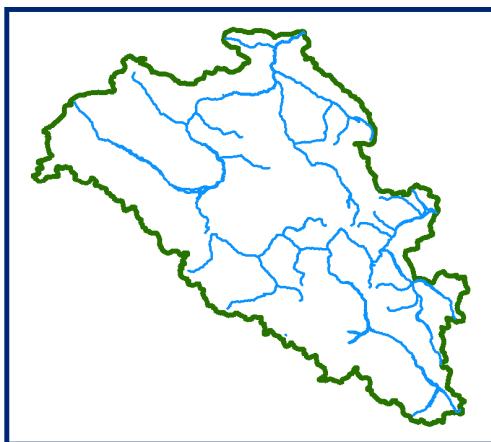
31 MAY 2010



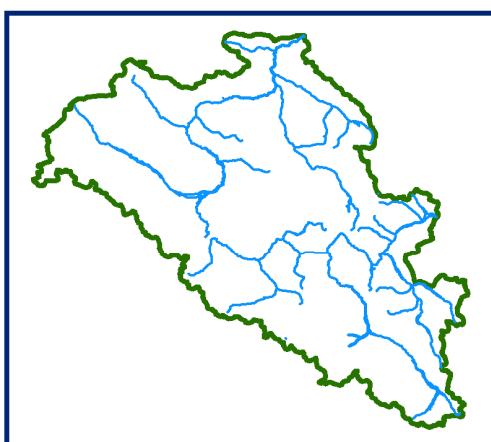
SNOW



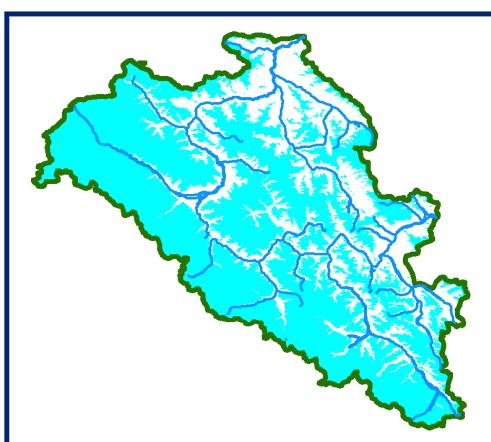
## 10 DAILY SNOW COVER MAP: ZASKER BASIN



**DATA NOT AVAILABLE**



**DATA NOT AVAILABLE**



**DATA USED  
26 MAY 2010**

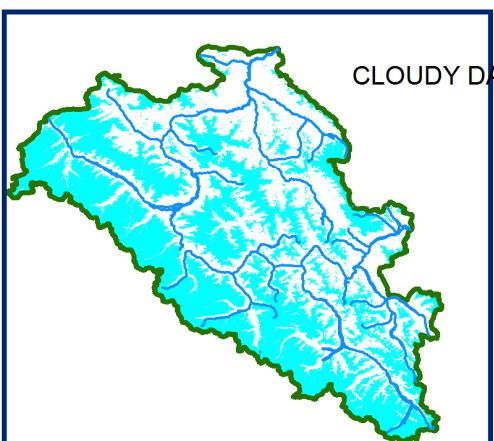


**SNOW**

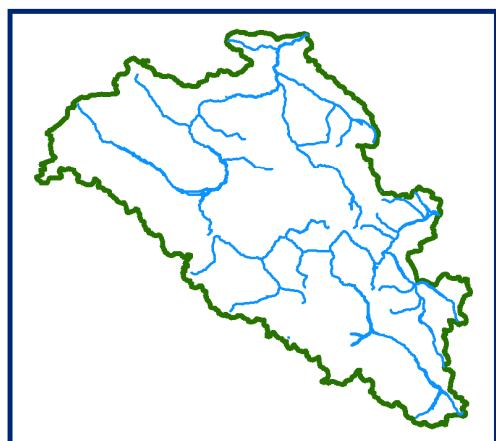


**SNOW COVER MAP:**

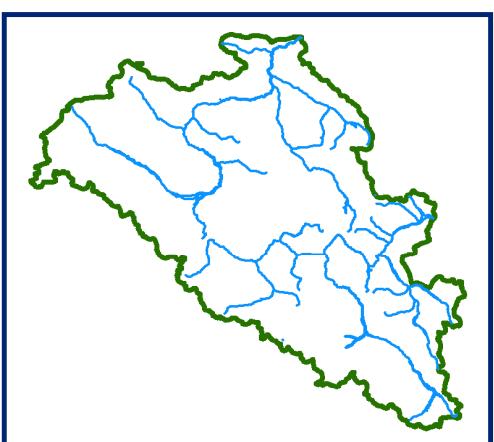
**ZASKER BASIN**



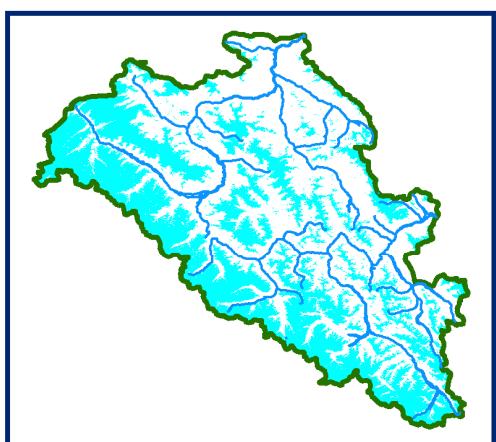
**01 JUNE 2010**



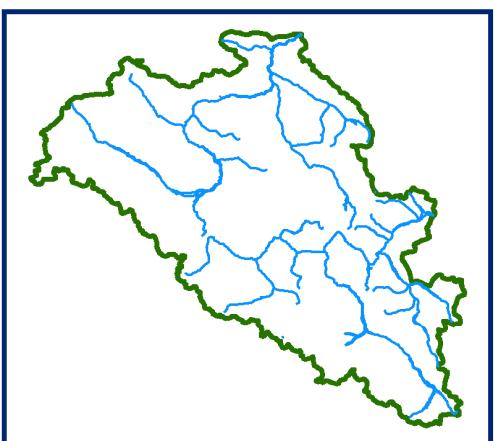
**DATA NOT AVAILABLE**



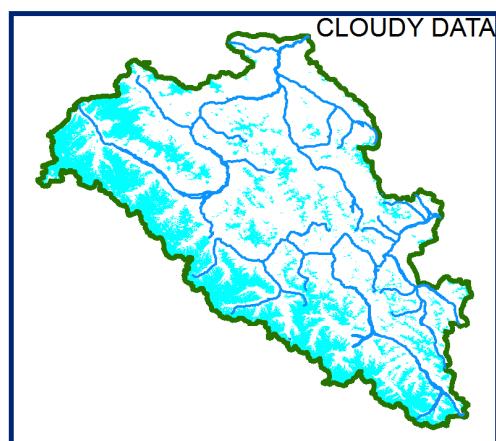
**DATA NOT AVAILABLE**



**20 JUNE 2010**



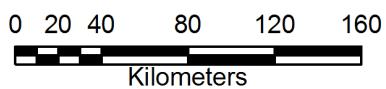
**DATA NOT AVAILABLE**



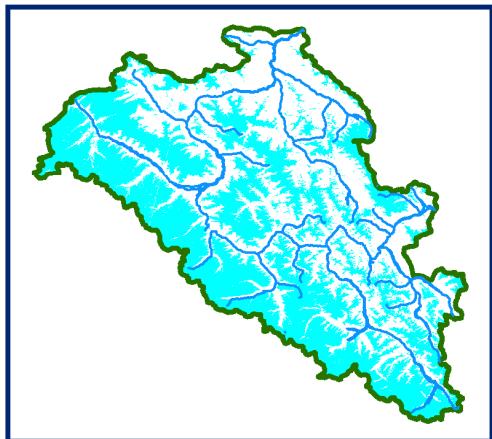
**29 JUNE 2010**



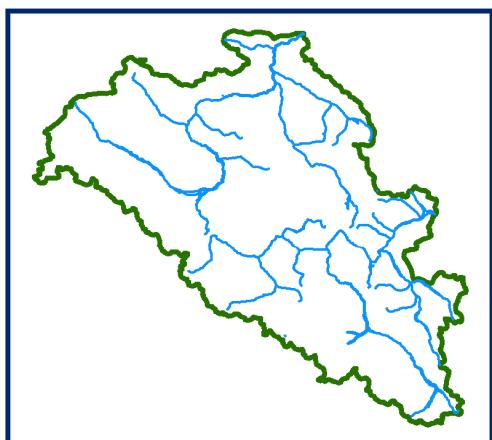
**SNOW**



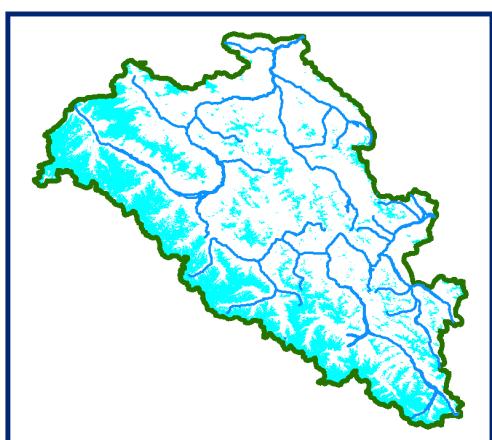
## 10 DAILY SNOW COVER MAP: ZASKER BASIN



DATA USED  
01 JUNE 2010  
20 JUNE 2010



DATA NOT AVAILABLE



DATA USED  
29 JUNE 2010

