Explore raw values of snow-cover indicators (pdf)

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2016 March

```
# Load packages
library("raster")
library("rgdal")
library("sp")
library("dplyr")
library("rasterVis")
```

Prepare Data

- Read snow cover indicator data and subset snow cover duration
- Read topographic data and position (spatial) data

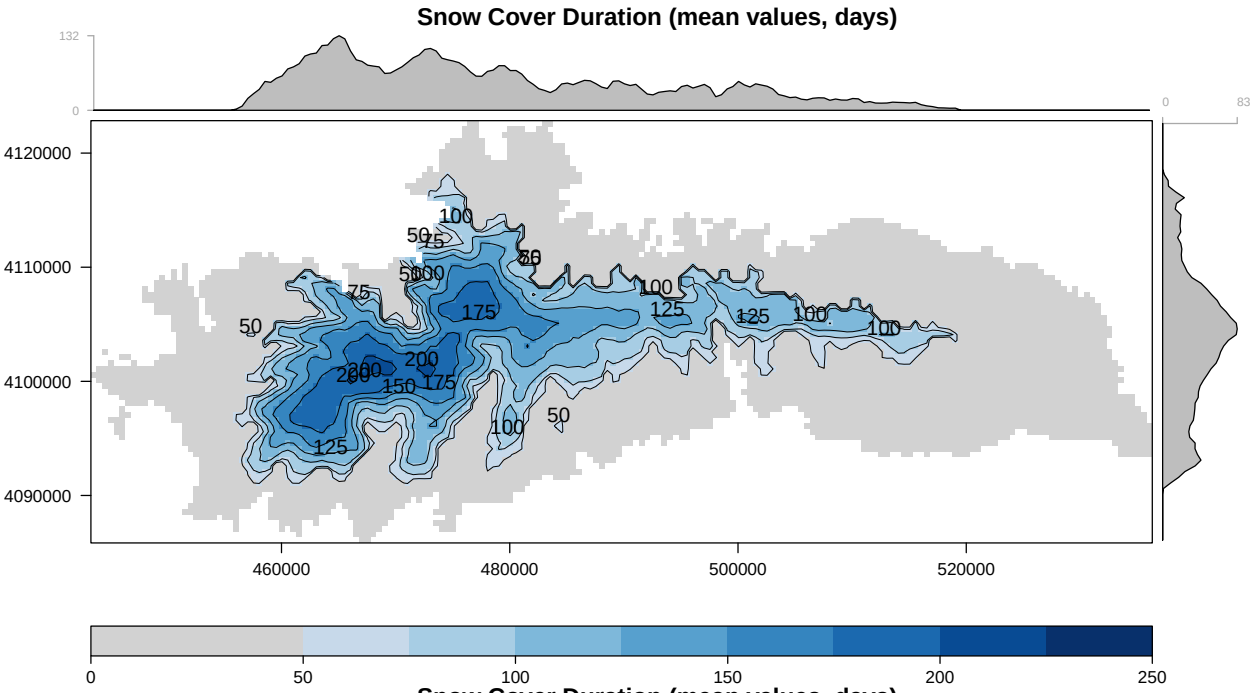
Spatial pattern of the snowcover indicators

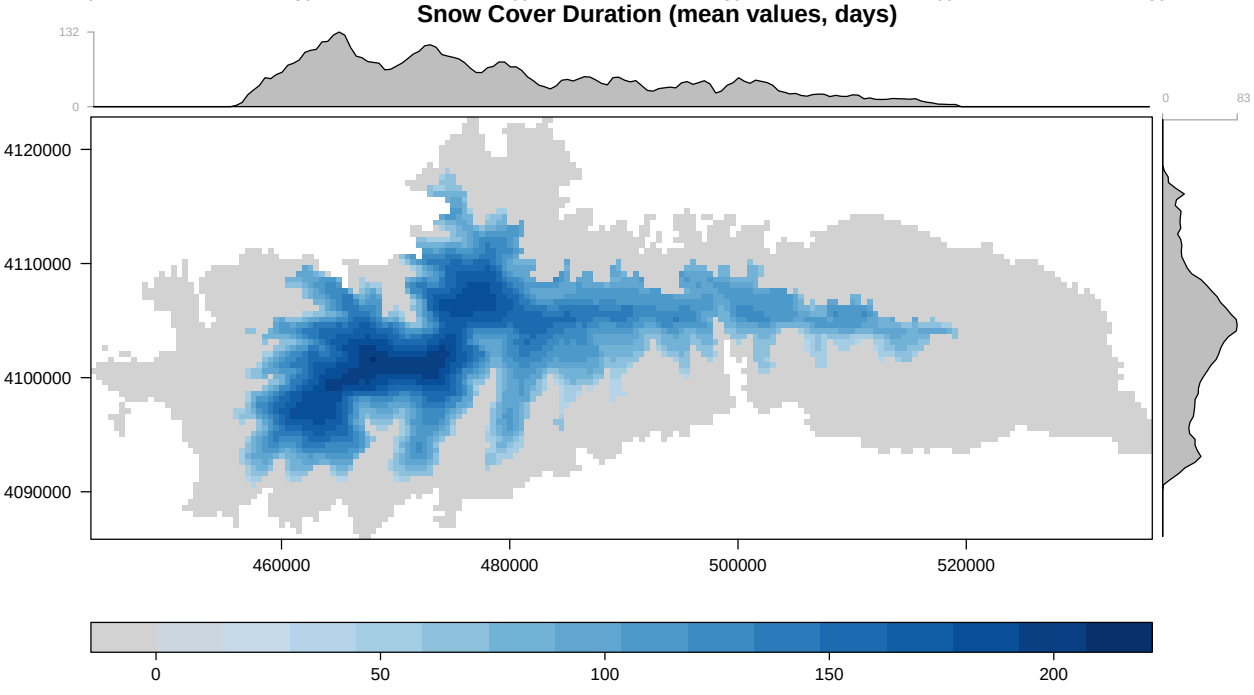
- Create raster maps of the summary stats for each indicator (`$indicator$`: `scd`, `scod`, `scmd`, `scmc`). Two raster maps will be created:
- `r_mean_$indicator$`: mean values of the indicator for the pixel in the temporal serie.
- `r_cv_$indicator$`: coefficient of variation of the indicator for the pixel in the temporal serie.
- Two additional raster maps will be created, with a mask of the elevation (those pixels above 1900 *m asl*). The names of the raster are: `r_mean_$indicator$_1900` and `r_cv_$indicator$_1900`. Pixels below 1900 masl show a value of `-1`. This value can be customized (change `updatevalue=-1` argument of the `mask` function).
- All these rasters are stored at `./data/derived/`

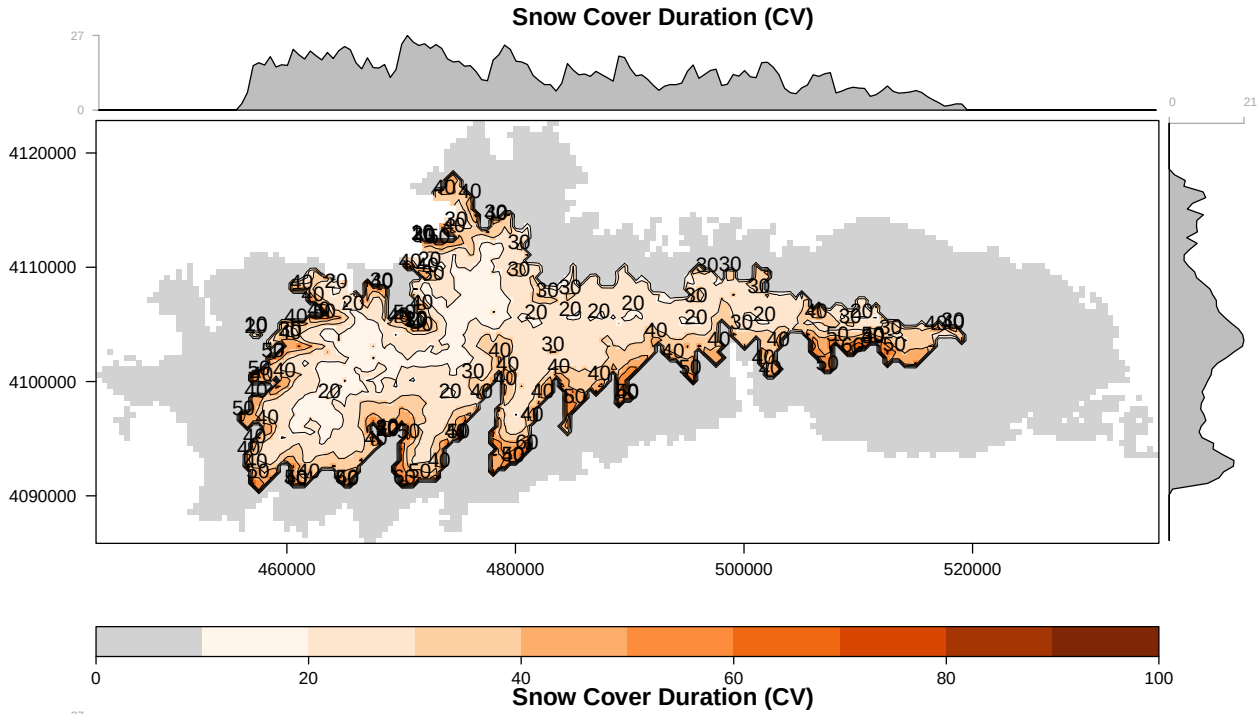
```
## [1] "+init=epsg:23030 +proj=utm +zone=30 +ellps=intl +towgs84=-87,-98,-121,0,0,0,0 +units=m +no_defs
```

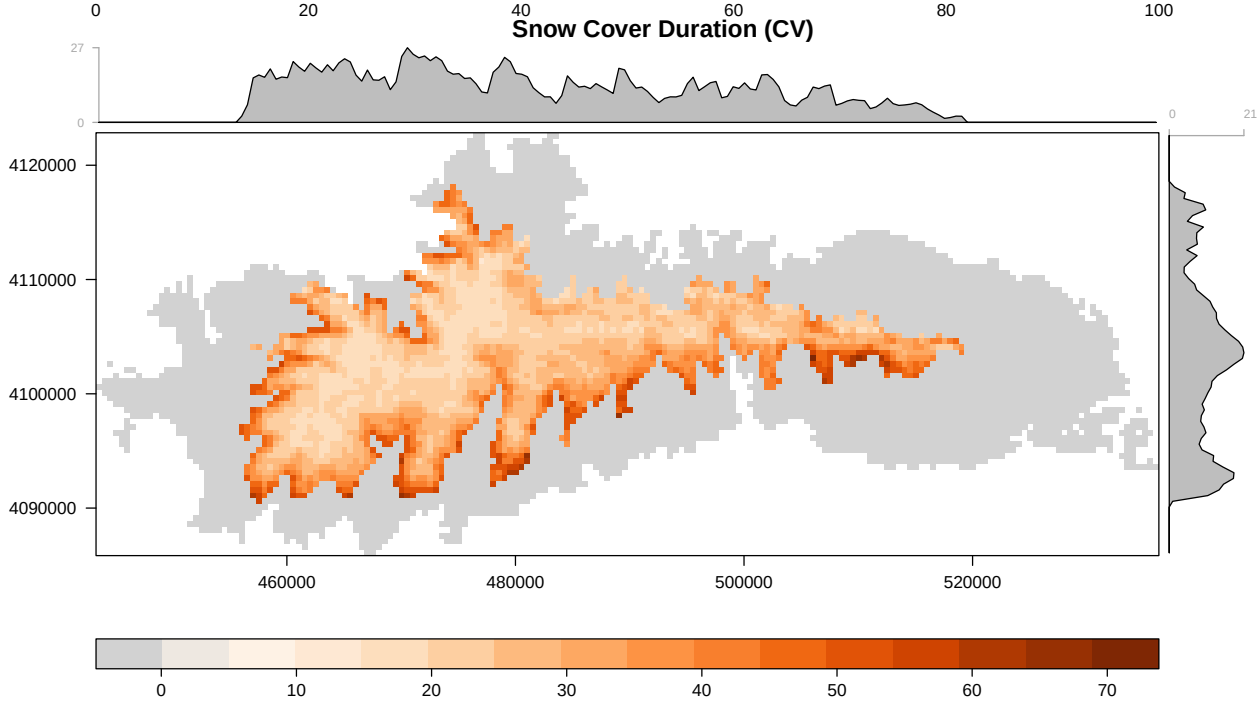
Visualization of the Snow Cover indicators

Snow Cover Duration

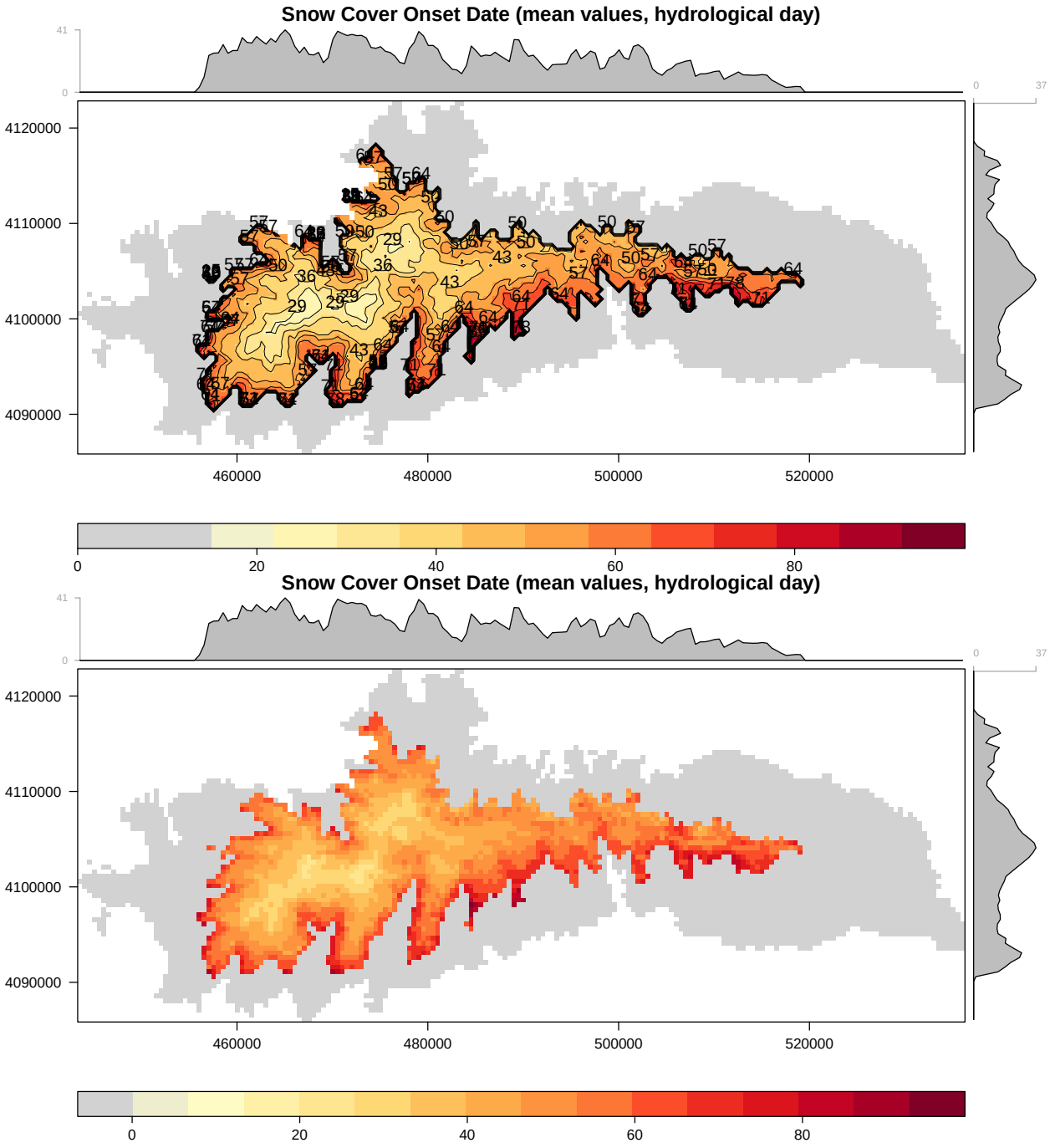


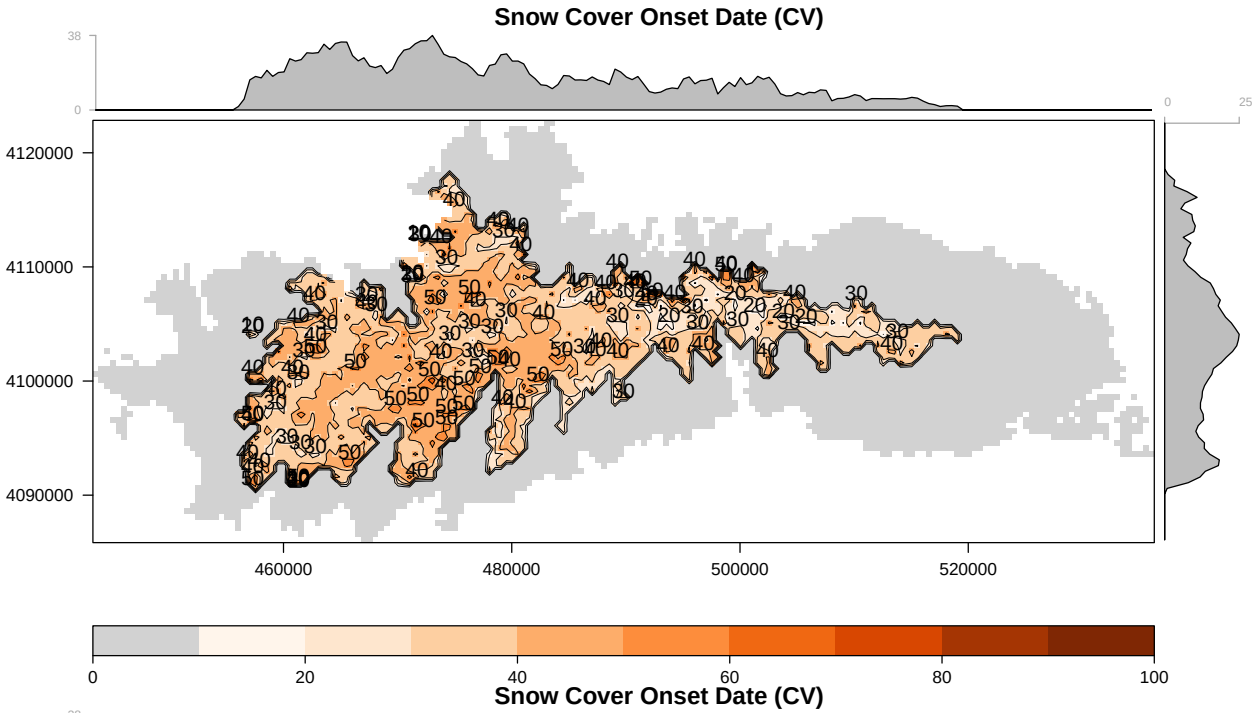


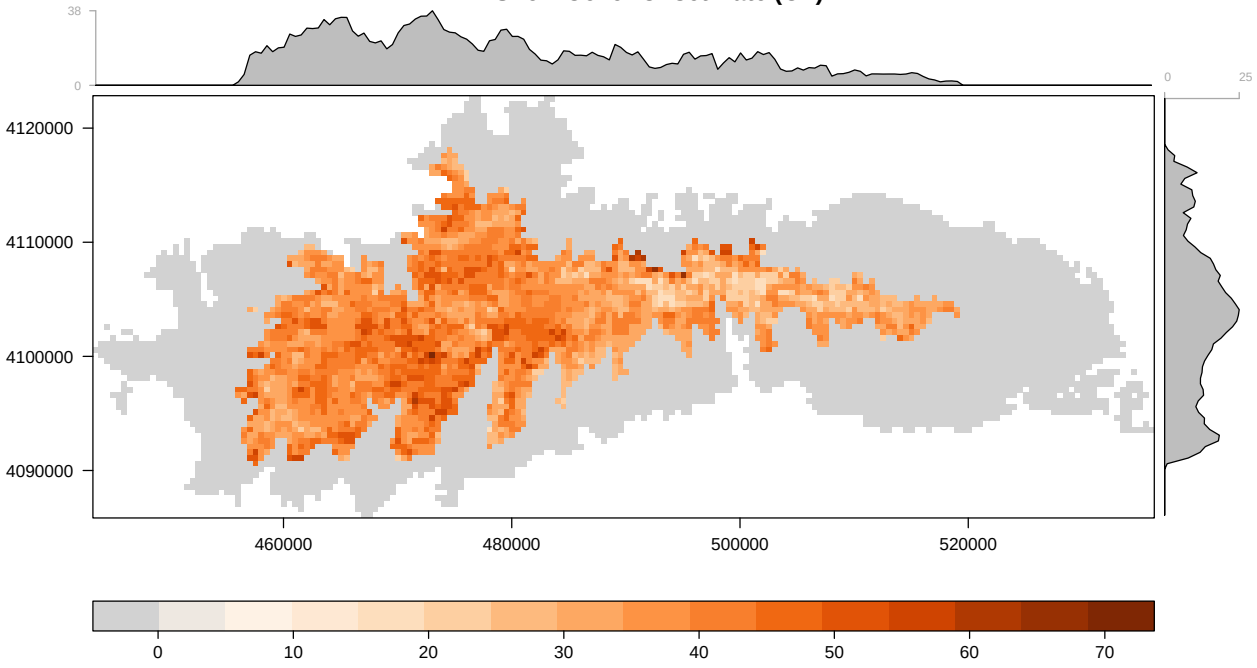

Snow Cover Duration (CV)
27
0
0
21
4120000
4110000
4100000
4090000
460000
480000
500000
520000
0
20
40
60
80
100


Snow Cover Duration (CV)
27
0
0
21
4120000
4110000
4100000
4090000
460000
480000
500000
520000
0
10
20
30
40
50
60
70

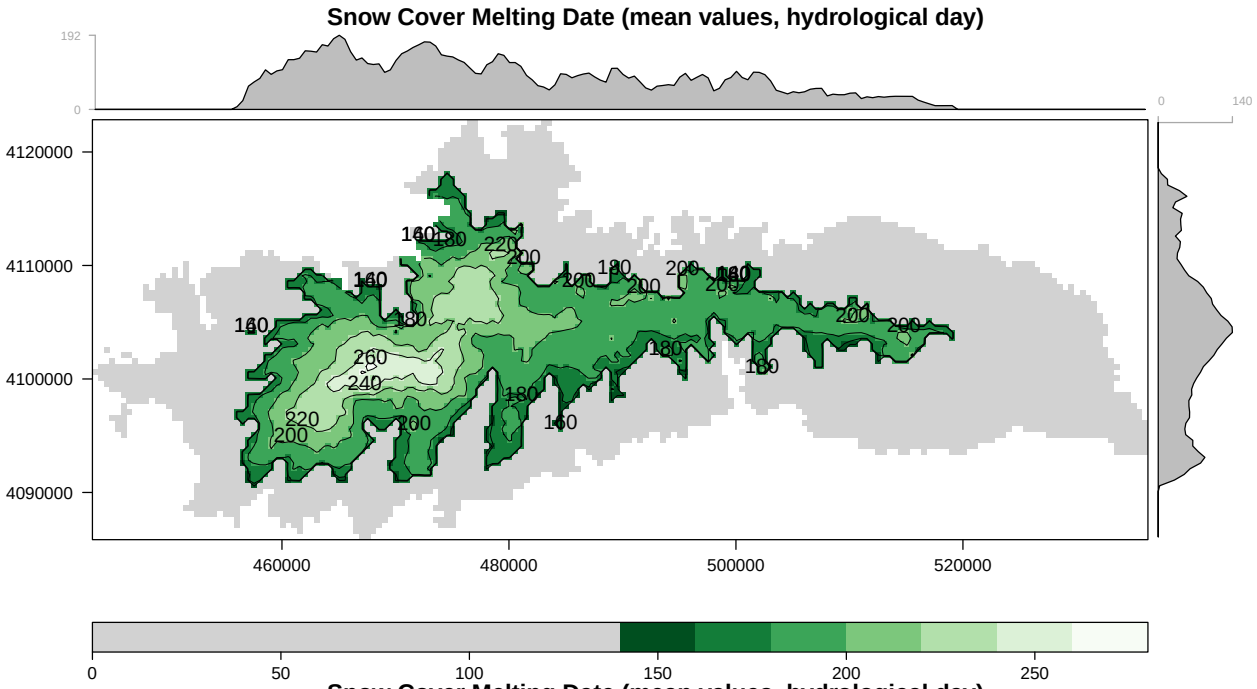
Snow Cover Onset Date

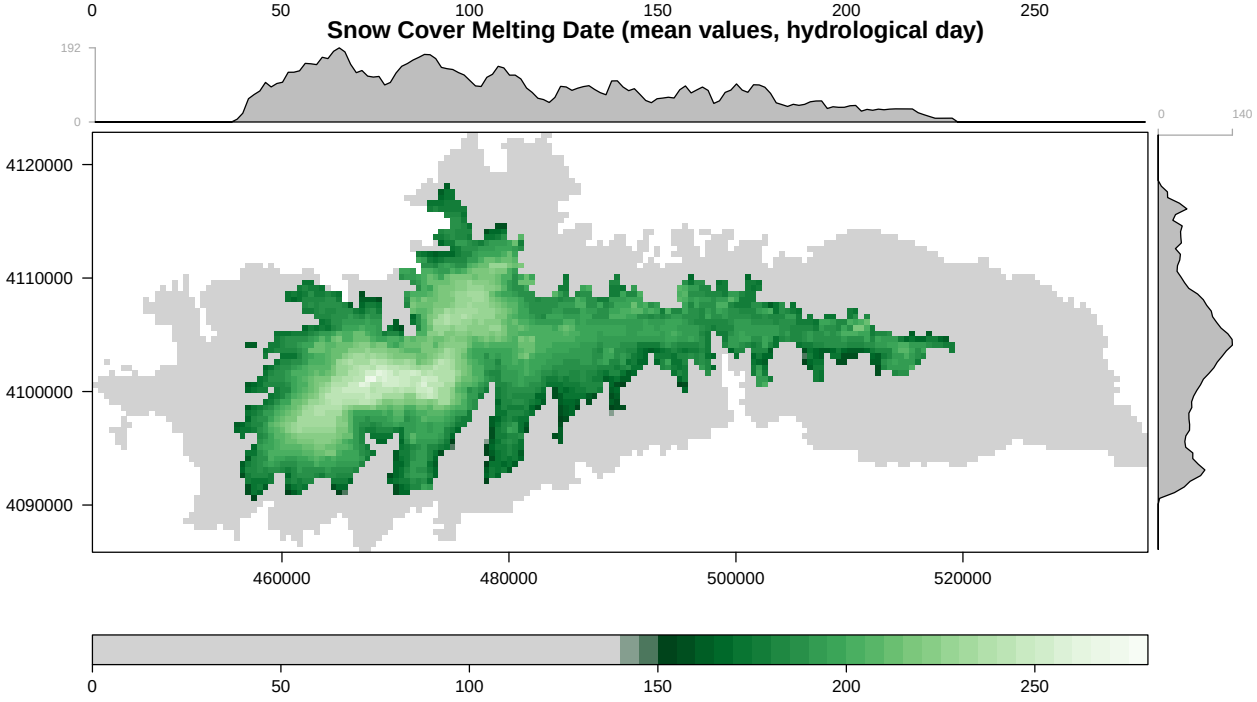


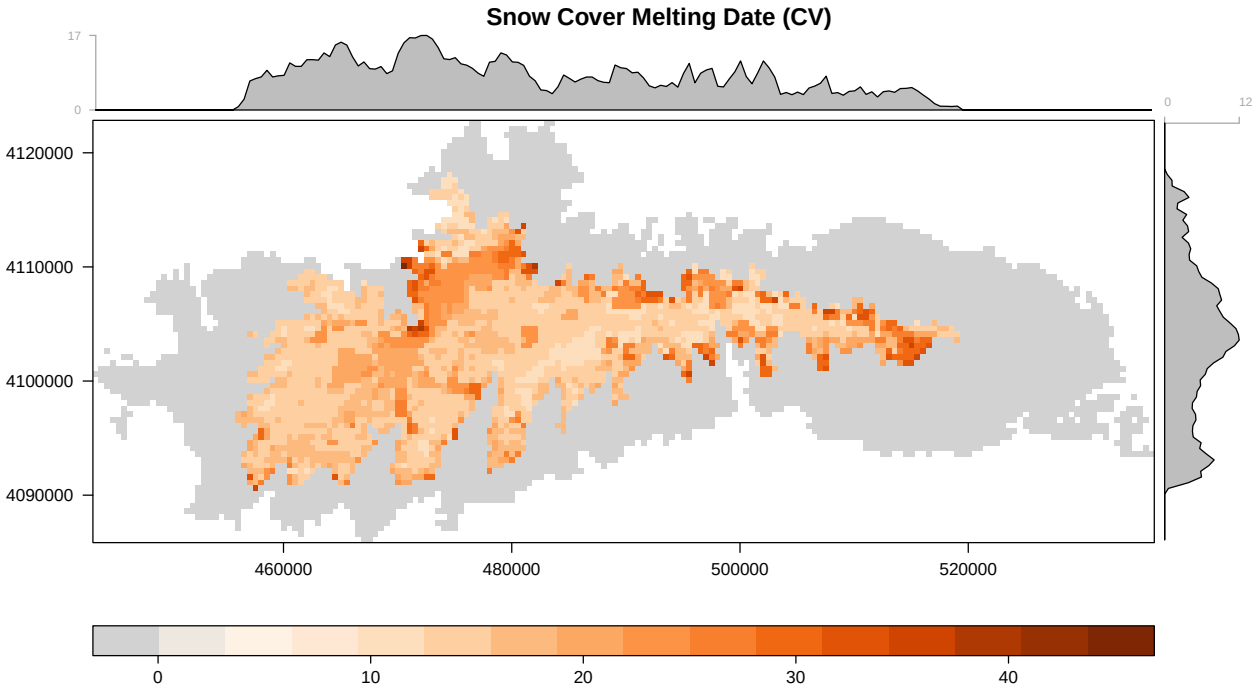




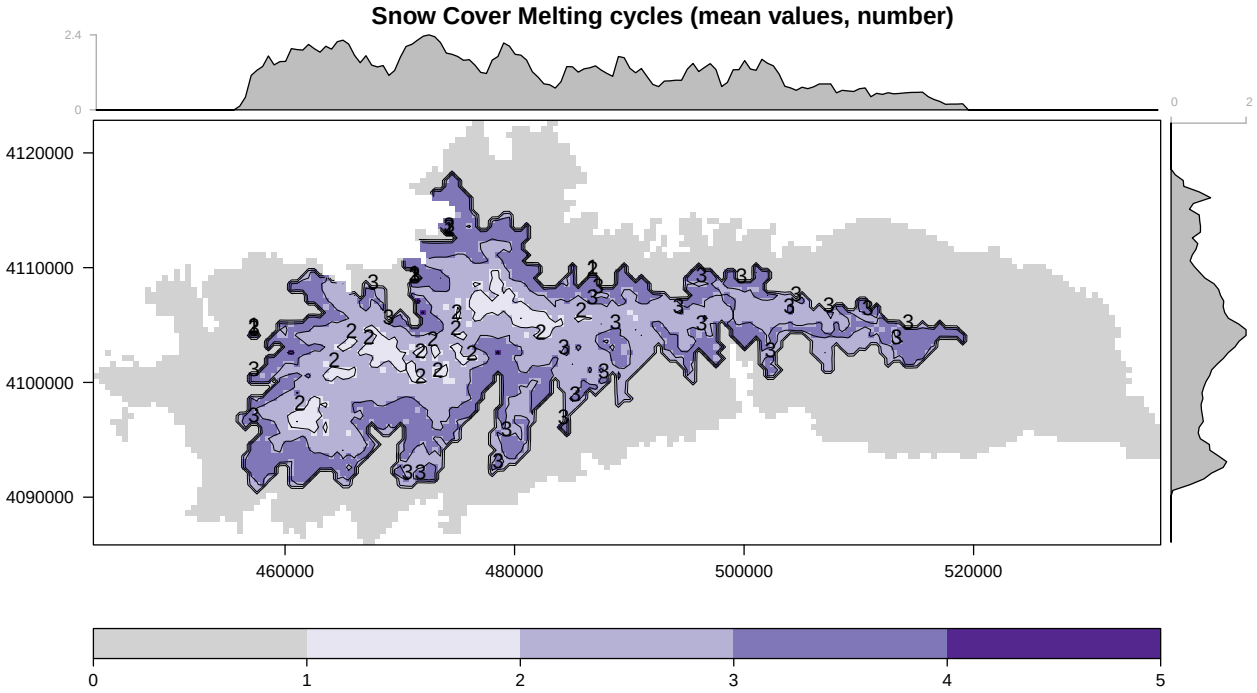
Snow Cover Melting Date

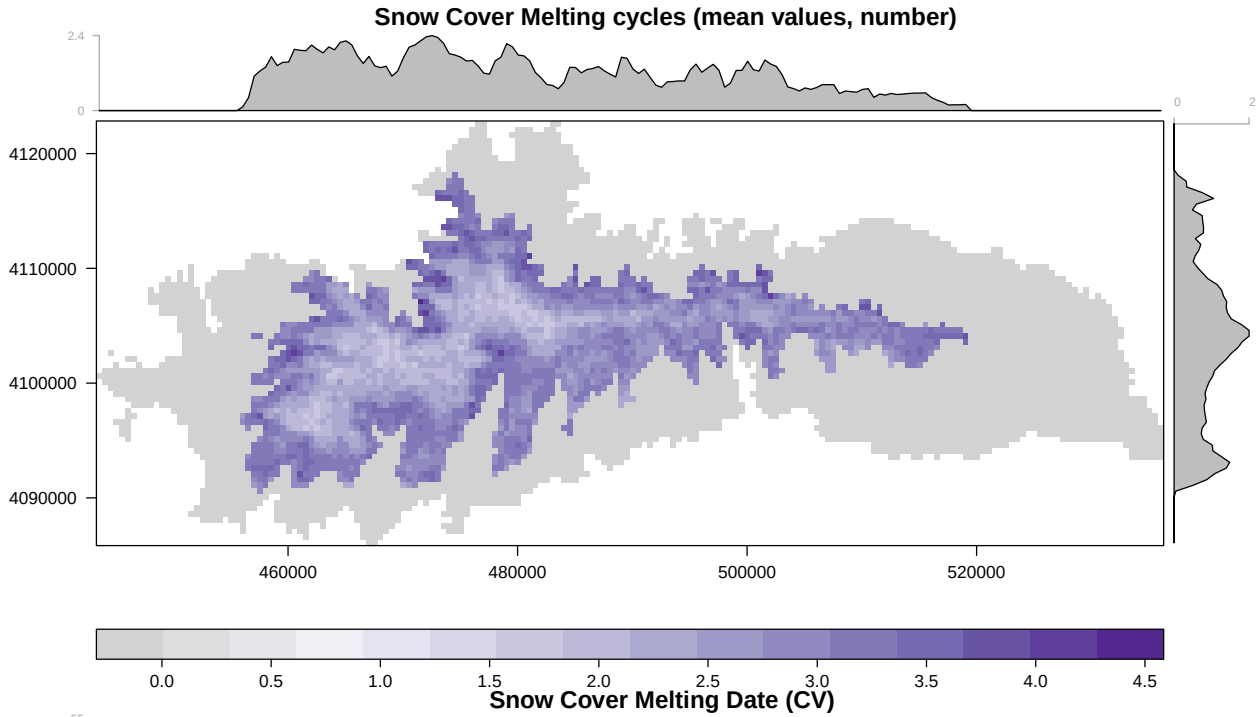

Snow Cover Melting Date (mean values, hydrological day)
192
0
0
140
4120000
4110000
4100000
4090000
460000
480000
500000
520000
0
50
100
150
200
250

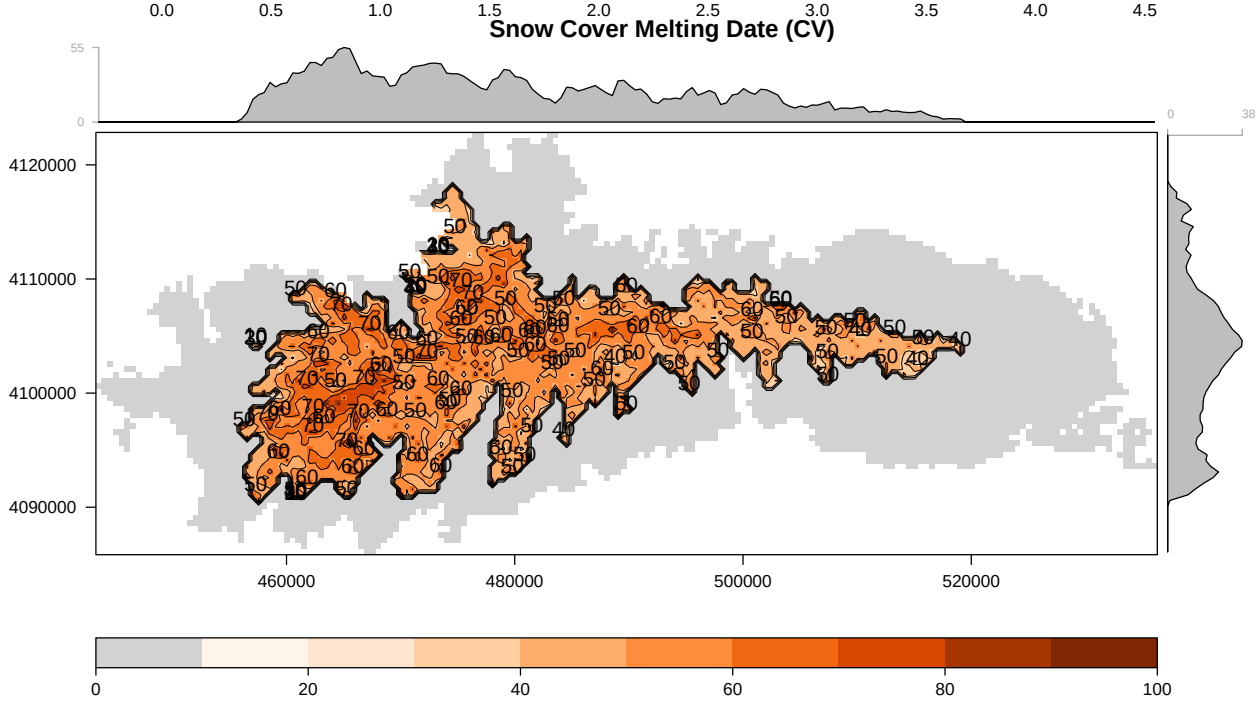

Snow Cover Melting Date (mean values, hydrological day)
192
0
0
140
4120000
4110000
4100000
4090000
460000
480000
500000
520000
0
50
100
150
200
250

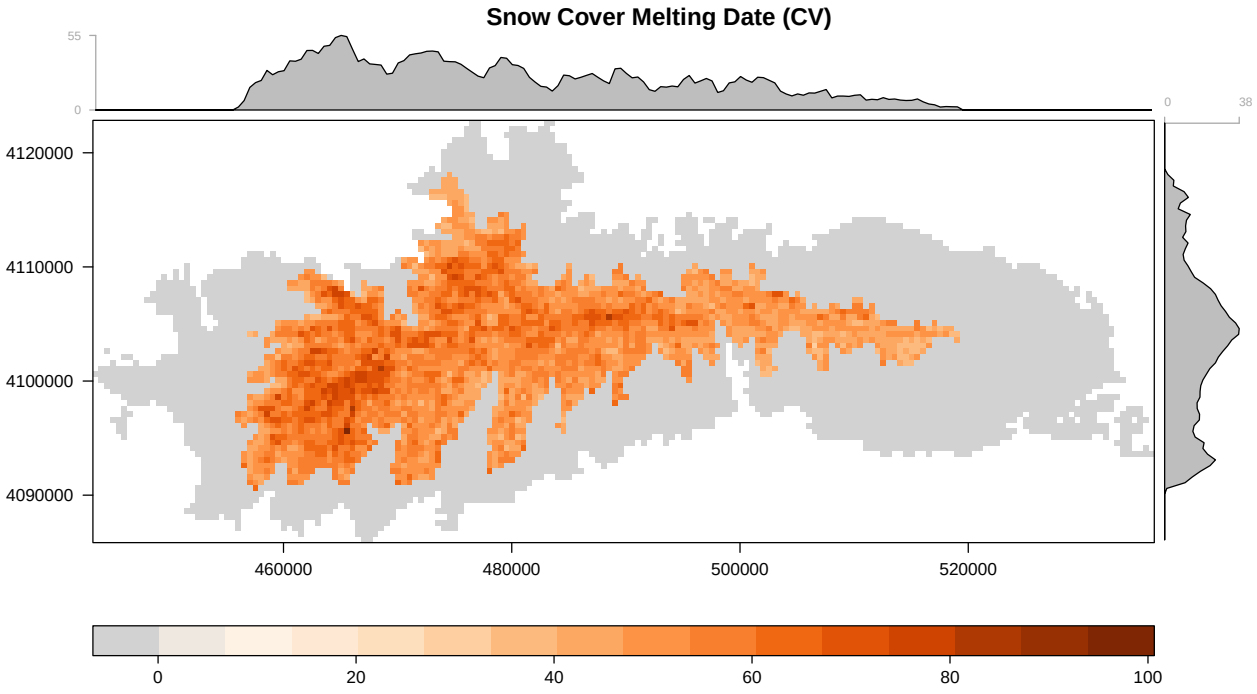


Snow Cover Melting Cycles




Snow Cover Melting cycles (mean values, number)
2.4
0
0
2
4120000
4110000
4100000
4090000
460000
480000
500000
520000
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5


Snow Cover Melting Date (CV)
55
0
0
38
4120000
4110000
4100000
4090000
460000
480000
500000
520000
0
20
40
60
80
100


Snow Cover Melting Date (CV)
55
0
0
38
4120000
4110000
4100000
4090000
460000
480000
500000
520000
0
20
40
60
80
100