Introduction of the Historical In-situ Snow Data Holdings in NMIC of CMA

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Outline

Snow observation in China

Snow data archived in NMIC

Snow observation in China

Snow observation in China

Measurement of snow cover

- When more than 50 percent of open ground around a station is covered by snow (also including granular snow, sleet and ice pellets), snow cover depth measurement should be carried out.
- It is usually at 8 o'clock in Beijing Time to make the measurement, and it is manually done by 3 times with a graduated ruler or scale.




Snow observation in China

Measurement of snow cover

- The record is a mean value in cm unit of those 3 measurements. If the mean value is less than 0.5 cm, trace of snow is recorded.
- Supplement surveys will be made at 14 or 20 o'clock, if 8 o'clock measurement had not been done as it did not fulfill observation condition.




Snow observation in China

Other measurements related to snow

- Solid precipitation observation: measuring water equivalent by using standard rain gauge overflow to obtain a sample
- Weather phenomena:
  - ✓ Snow cover
  - ✓ Solid precipitation phenomena, such as snowfall, snow shower, sleet, ice pellets …

Snow data archived in NMIC

Snow data archived in NMIC

- Snow cover & solid precipitation over China
  - Daily snow cover dataset (In development)
  - Daily solid precipitation dataset (In planning)
- Global snow cover
  - Global surface synoptic reports dataset (1980~)
- Climate normal value
  - Monthly surface climate normal dataset over China (1971-2000)
  - Yearly surface climate normal dataset over China (1971-2000)
  - Monthly surface climate normal dataset over China (1981-2010)
  - Yearly surface climate normal dataset over China (1981-2010)

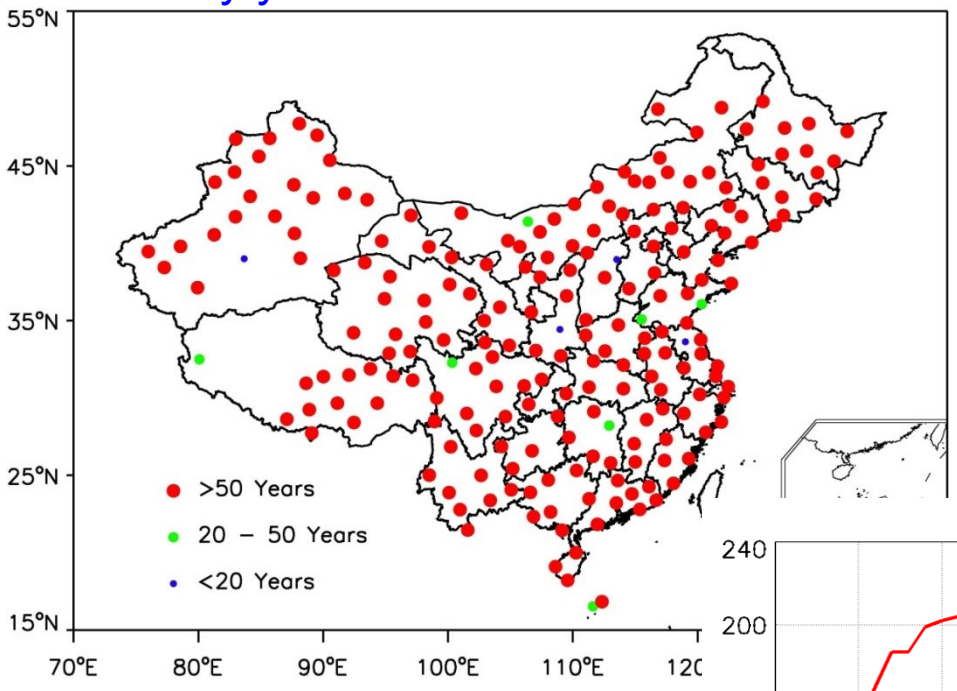
Daily snow cover dataset

Contents：

- Snow cover depth ← Snow cover observation
- Snow pressure ←
- Snow cover day ← Weather phenomena
- Snow depth increment ← Snow cover depth

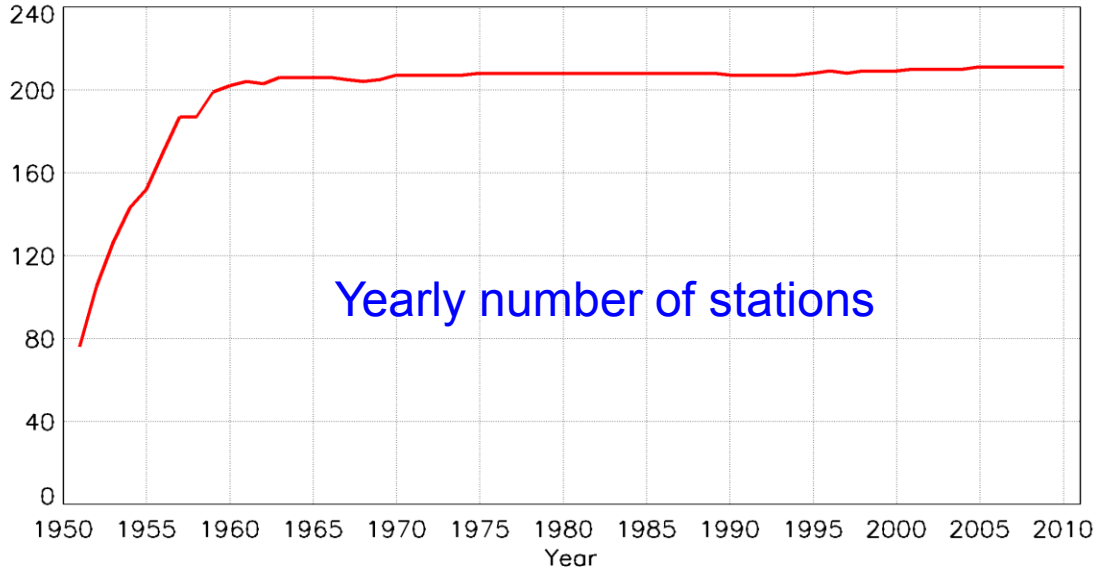
Daily snow cover depth data

Survey year of 212 stations over China



- 94.8% of the 212 surface stations have more than 50 years daily snow cover depth measurements.
- 4 stations' series are less than 20 years, as 3 stations established among 1990 to 2000 and 1 station canceled snow cover depth observation from 1966.

- 1951-1960 is a so called surface station establishment period.
- After 1960, more than 200 stations carry out snow cover depth measurements.



Daily snow cover depth data

Data integrity

- Yearly integrity: 99.5%~100%
- Integrity for single station:
  - 2 stations' integrity are between 95% and 98%
  - 210 stations' integrity are higher than 98%

Quality control

Internal consistency method is used to check the data quality.

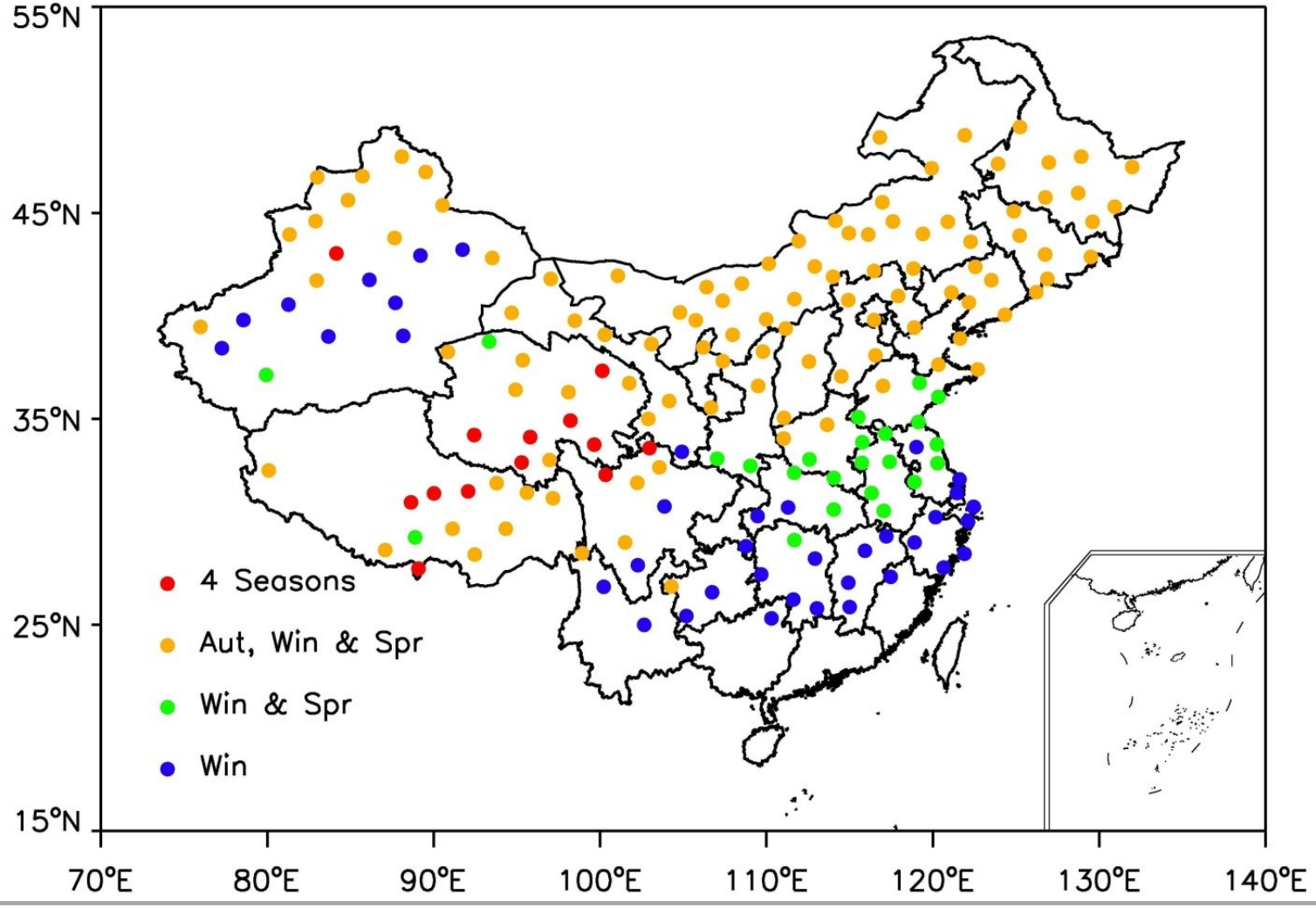
- Weather phenomena related to snow
- Solid Precipitation

Data quality

- Every station's data quality is higher than 99.4%

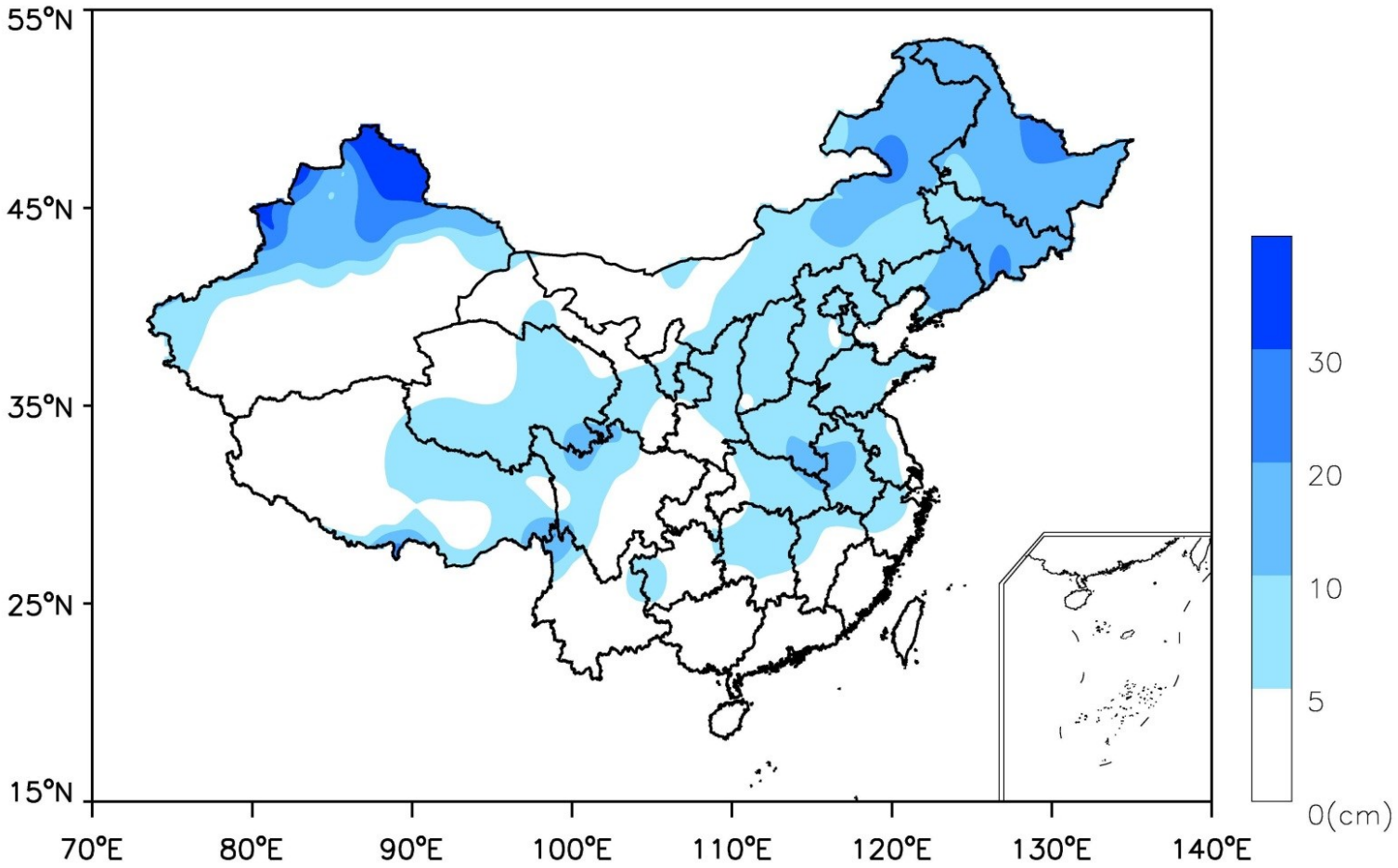
Daily snow cover depth data

Existing season of snow cover



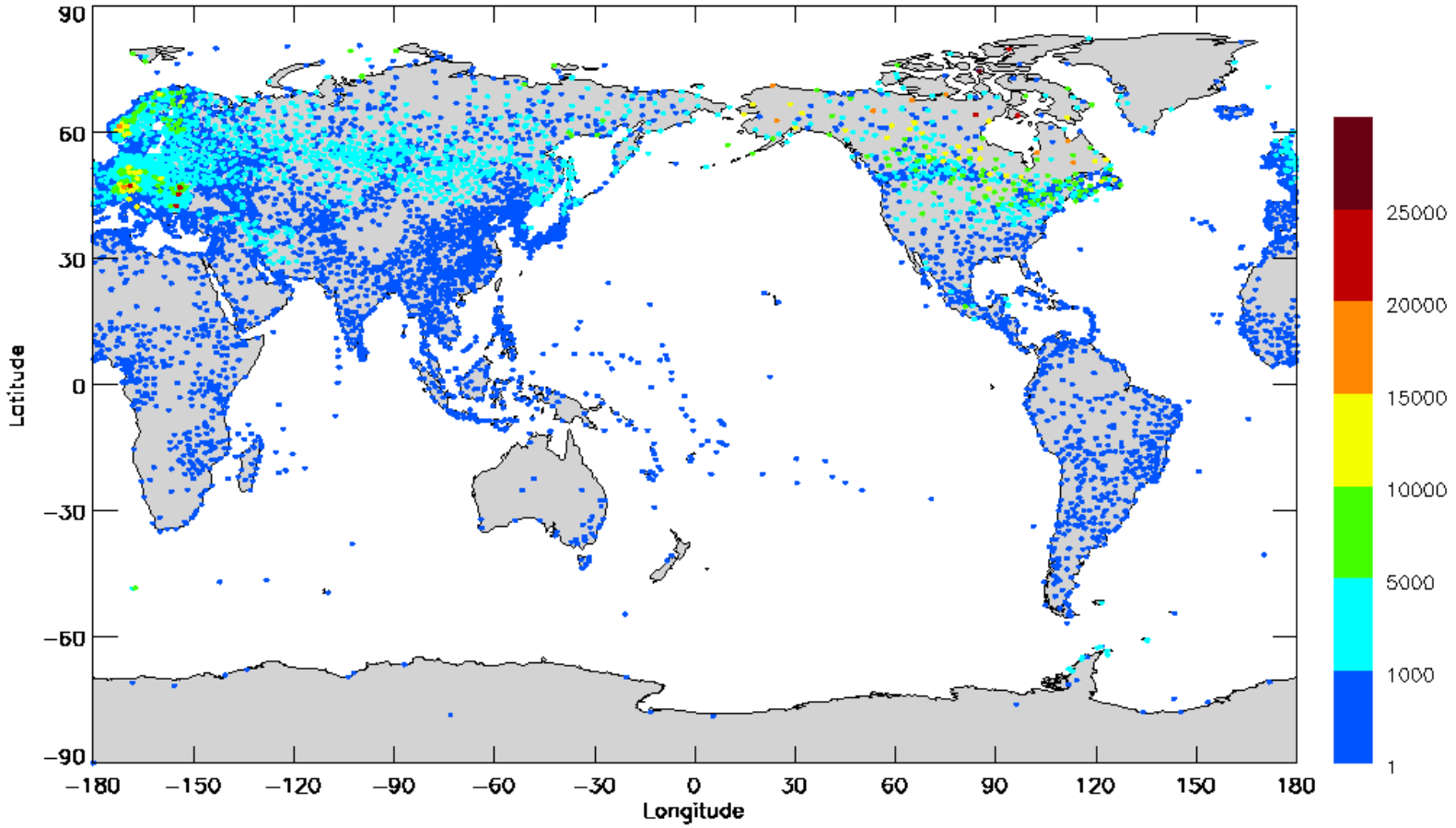
Daily snow cover depth data

30 yrs. mean of maximum snow cover depth



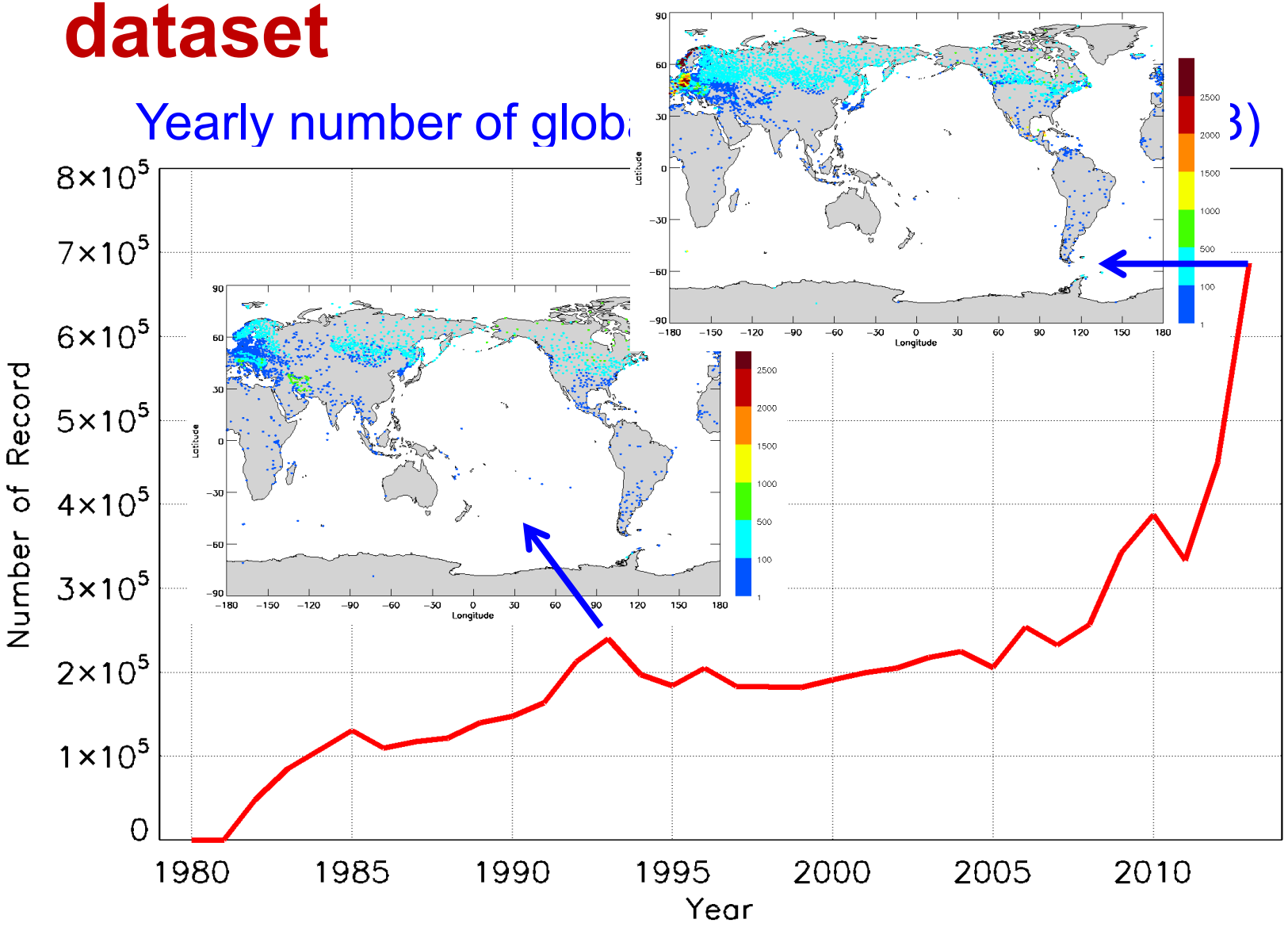
Global surface synoptic reports dataset

Distribution of snow cover depth observations (1980-2013)



Global surface synoptic reports dataset

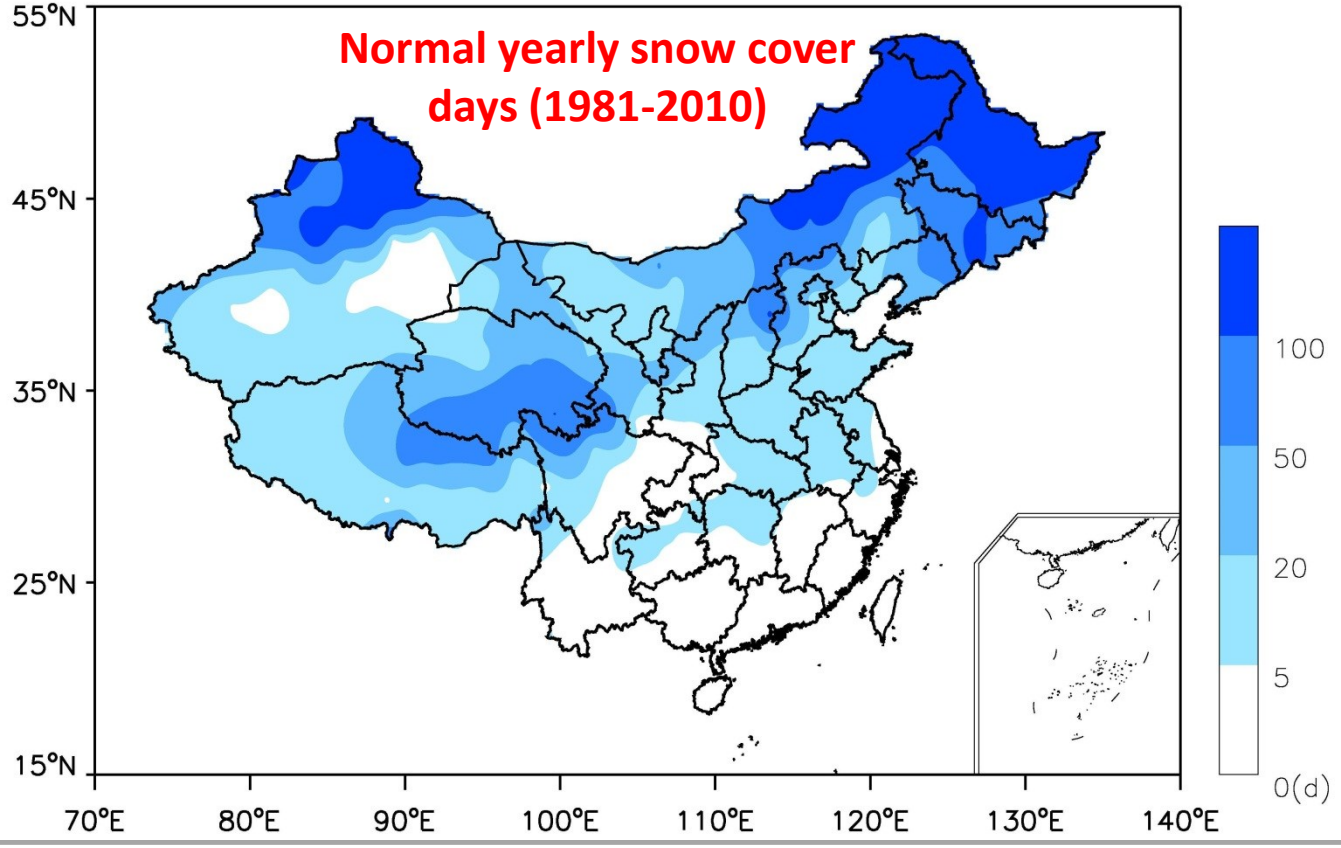
Yearly number of glob 3)



Climate normal value

30 yrs. mean of monthly/yearly normal value

- snowfall days
- snow cover days
- maximum snow depth and its occurring date



Thank you for your attention!

Questions or suggestions?