



Enhancing observations---GCOS/IPCC/UNFCCC Workshop

Challenge for National Observations in Support of Preparedness and Adaptation Climate change in China

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The goals of session 4

Assessing the adequacy of national and regional networks and records for detection of climate trends to inform global, regional and national assessments of climate change and for developing regional and national climate risk profiles.



Outline

- Challenge of national observation network to meet the needs of climate change assessment
- Challenge of observations system to support national climate risk assessment



Observation needs for climate change assessment

- Representativeness
- Accuracy
- Stability and sustained
- The matching of the spatial and temporal scales with the climate variability

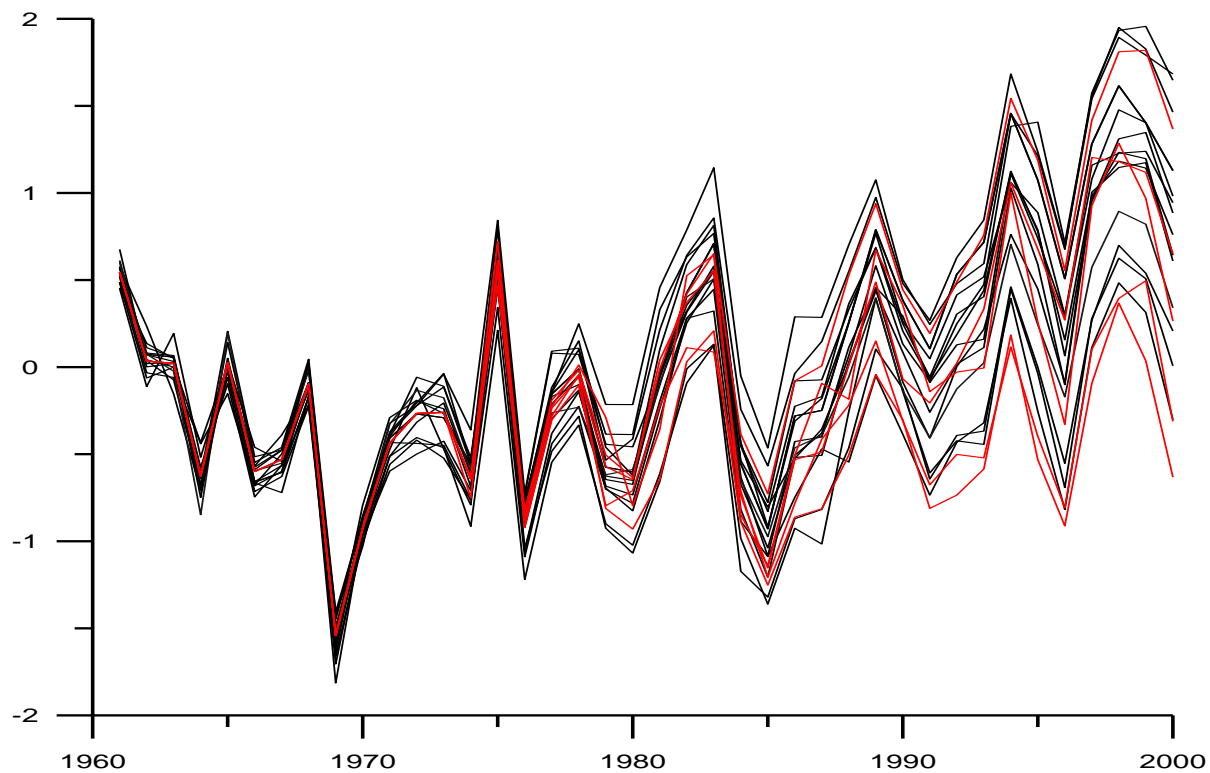


Challenge for climate change assessment (1)

- Urbanization is a significant feature during last 20 years in China.
 - It makes the environment around the climate observation site changed quickly.
 - The representativeness and the accuracy of the observed data, and the stability of the observation site are easy to be affected by such changes.
 - The uncertainty and the errors added to the data by such changes are difficult to be detected and removed.

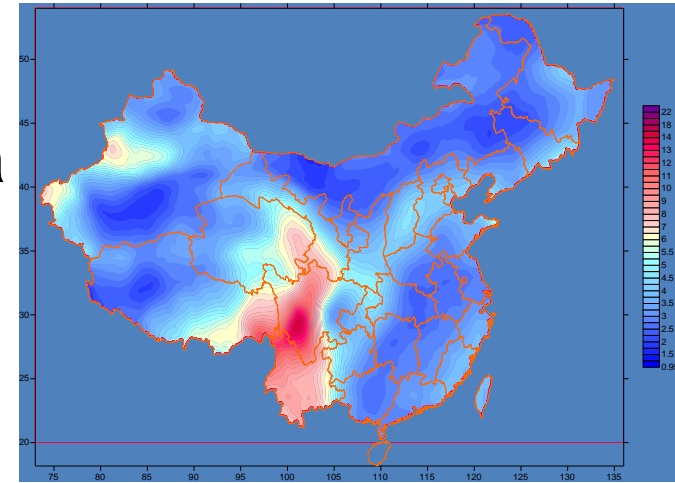


The variation of annual temperature anomalies of 20 observation in Beijing

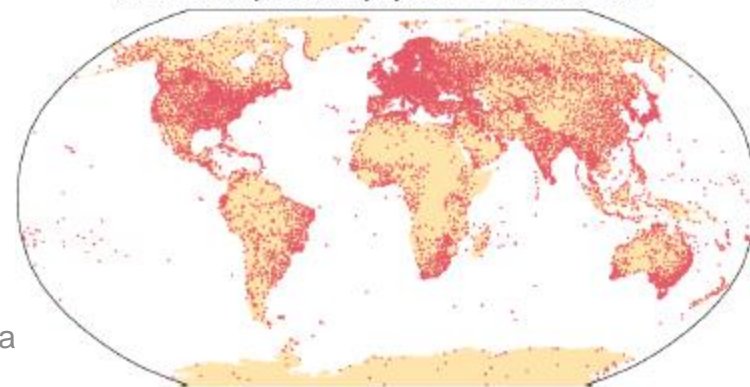


Challenge for climate change assessment (2)

- On the other hand, considering the adequacy of the national climate observation network:
 - The complexity of climate spatial variation in southwest part of china needs more dense observation in this area.
 - The west part of china are difficult to be covered by surface observation network.

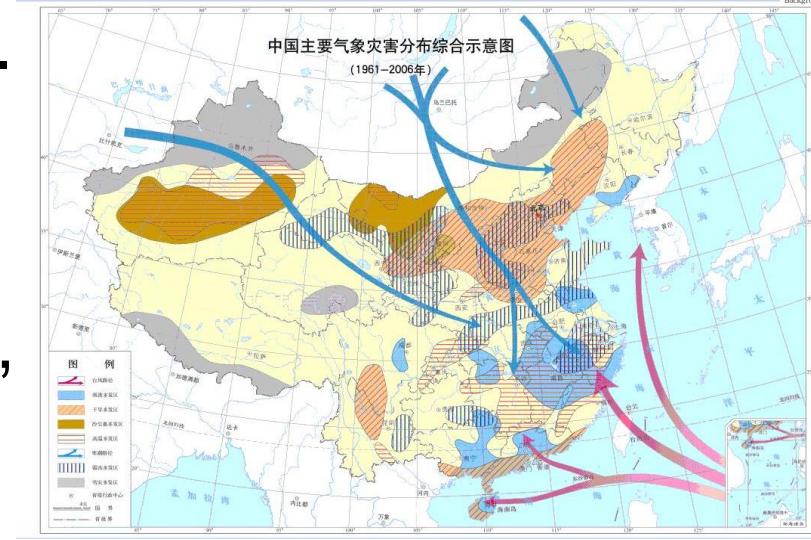


Stations providing surface data at least once per day
as received operationally by ECMWF in October 2014

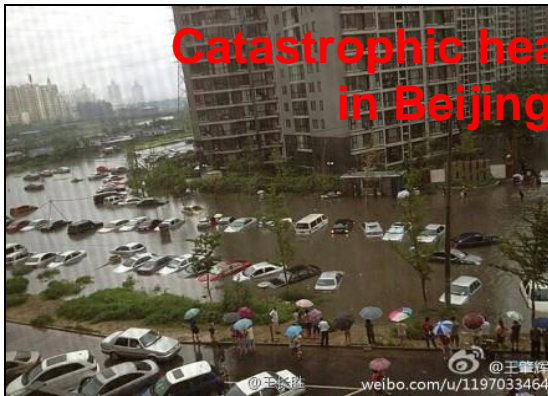
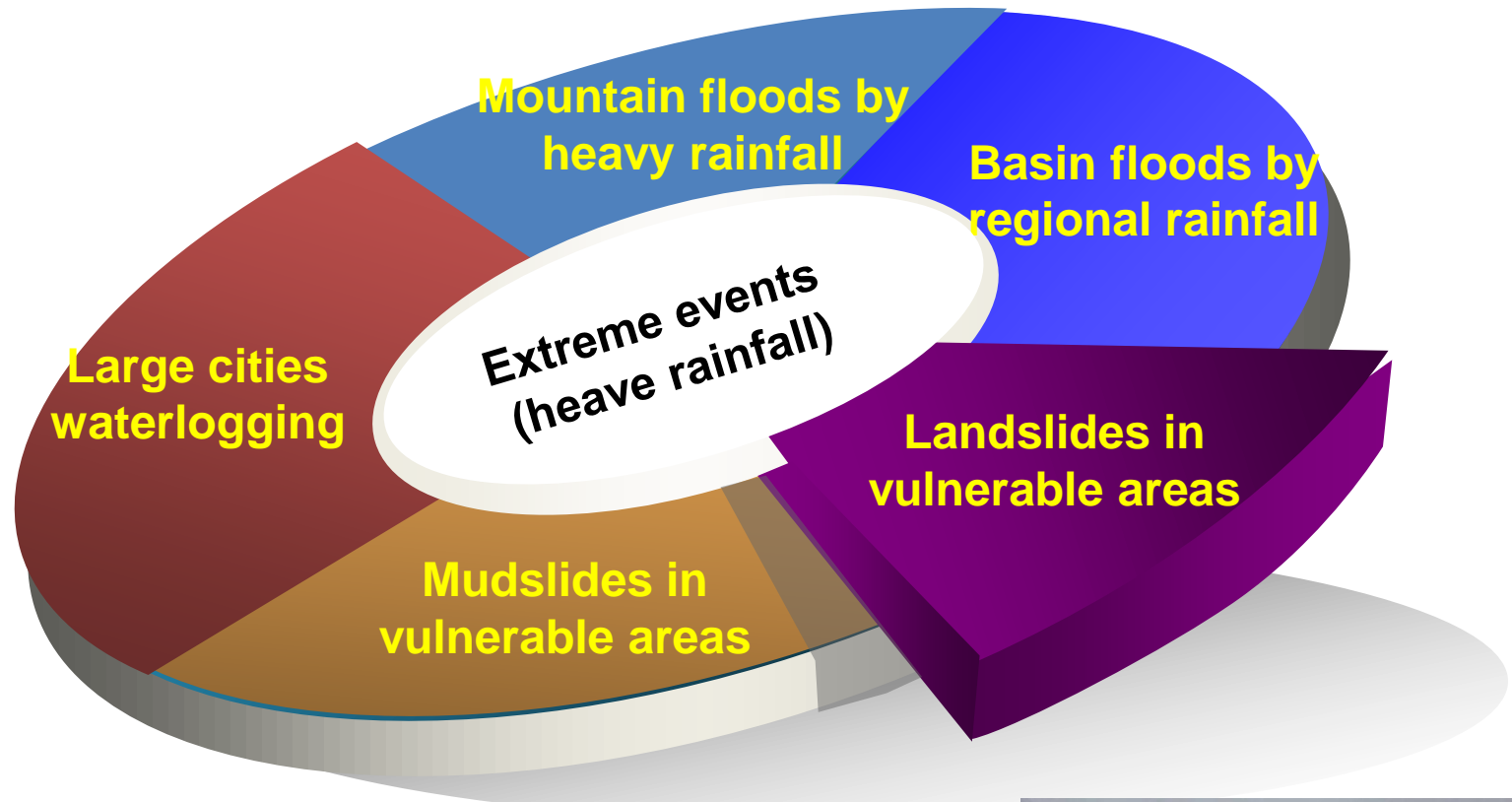


The distribution of climate disaster in China

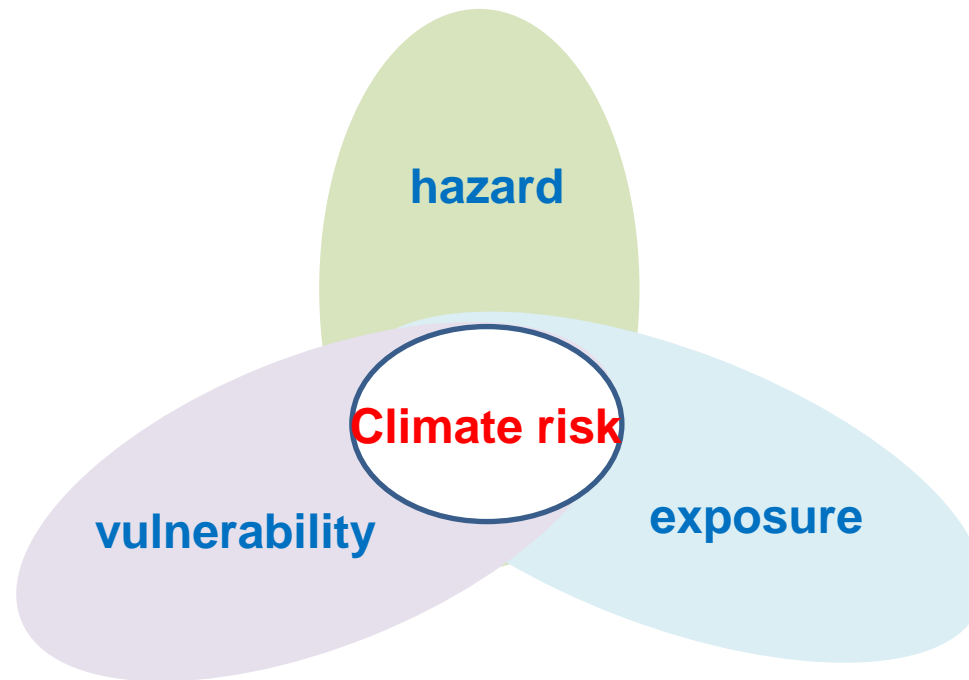
- Northwest part: drought, sand storm, chilling damage.
- Tibet plateau: hail, snow storm.
- Southwest part: heat, drought, landslides, mountain floods,
- Northeast part: chilling damage, drought, flood.
- North China: chilling damage.
- Jianghuai region: heavy rain and flood, typhoon, thunderstorm, tornado.
- South China: typhoon, flood, drought.



The climate risk is different in different area



The climate risk depends on more indicators



Hazards: rainfall, runoff, flows, flood depth over time

Environmental elements: geology, topography, soil, underlying surface

Exposure: vulnerable sites, infrastructures, population, socioeconomic development

Vulnerability: monitoring and early warning, disaster prevention and mitigation measures, disaster prevention projects among others

Challenge for climate risk assessment

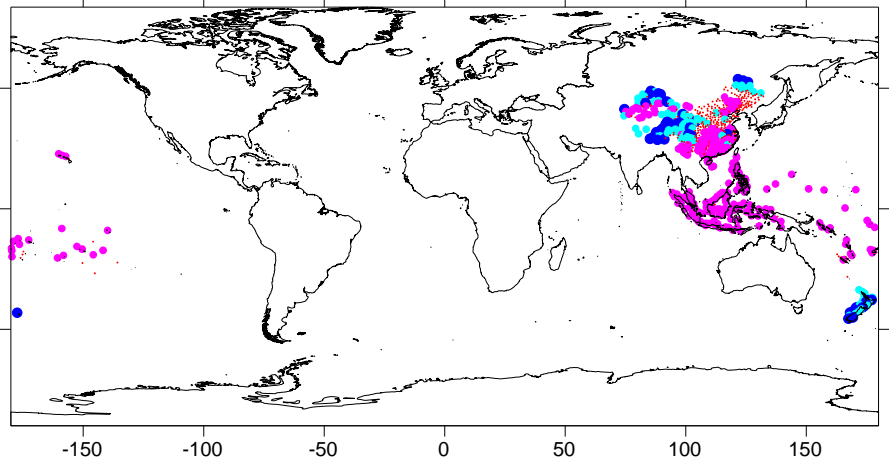
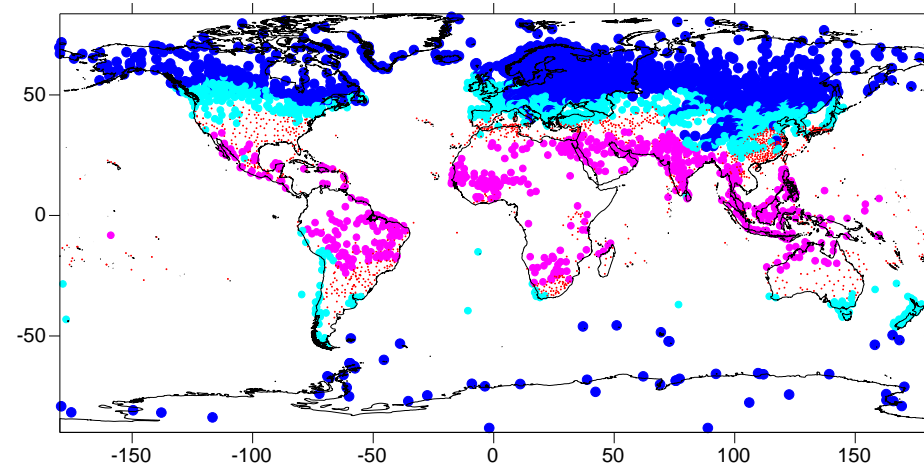
- The technique and capacity of observation withstand the extreme climate events are short.
- The persistence of surface observation on vulnerable areas is difficult to fulfill.
- More non-climate variables need to be acquired timely but they usually not easy be done.
- For ensuring regional climate assessment and climate risk prediction, the completeness and stability of observation data providing by GTS need to be further improved.



Sep. 26, 2011 Data received

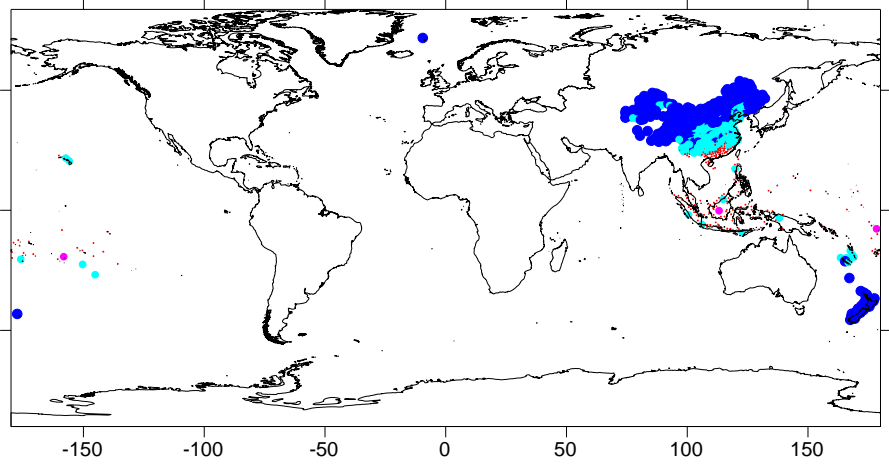
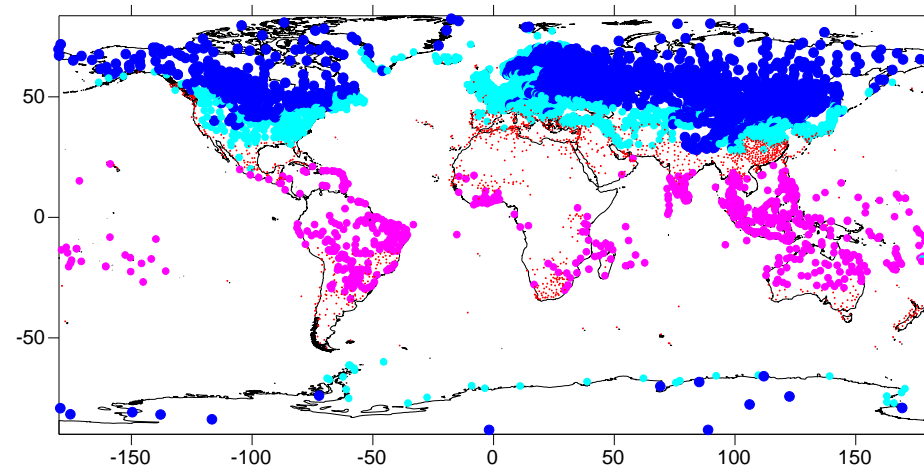
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question

How to ensure the accuracy of the climate trend by using the data from the sites with changed surroundings and how to fulfill the adequacy of the climate observation in complex or extreme topography area ?

challenge

The persistence of the surface observation withstand the extreme climate events should be resolved.





Thank you !

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