



# Propagation from meteorological to groundwater drought response to global warming

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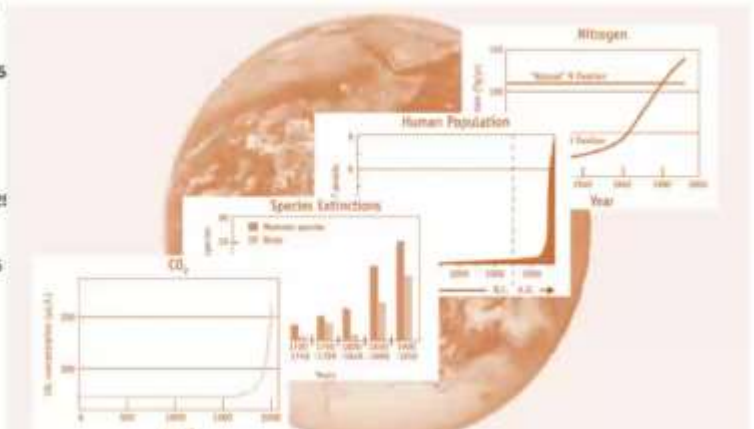
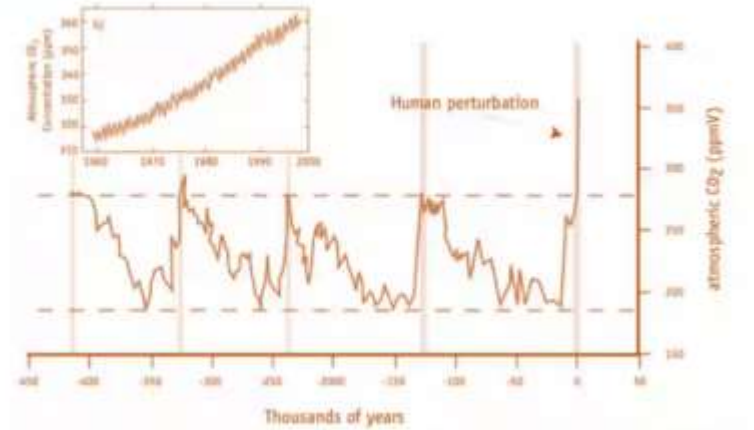
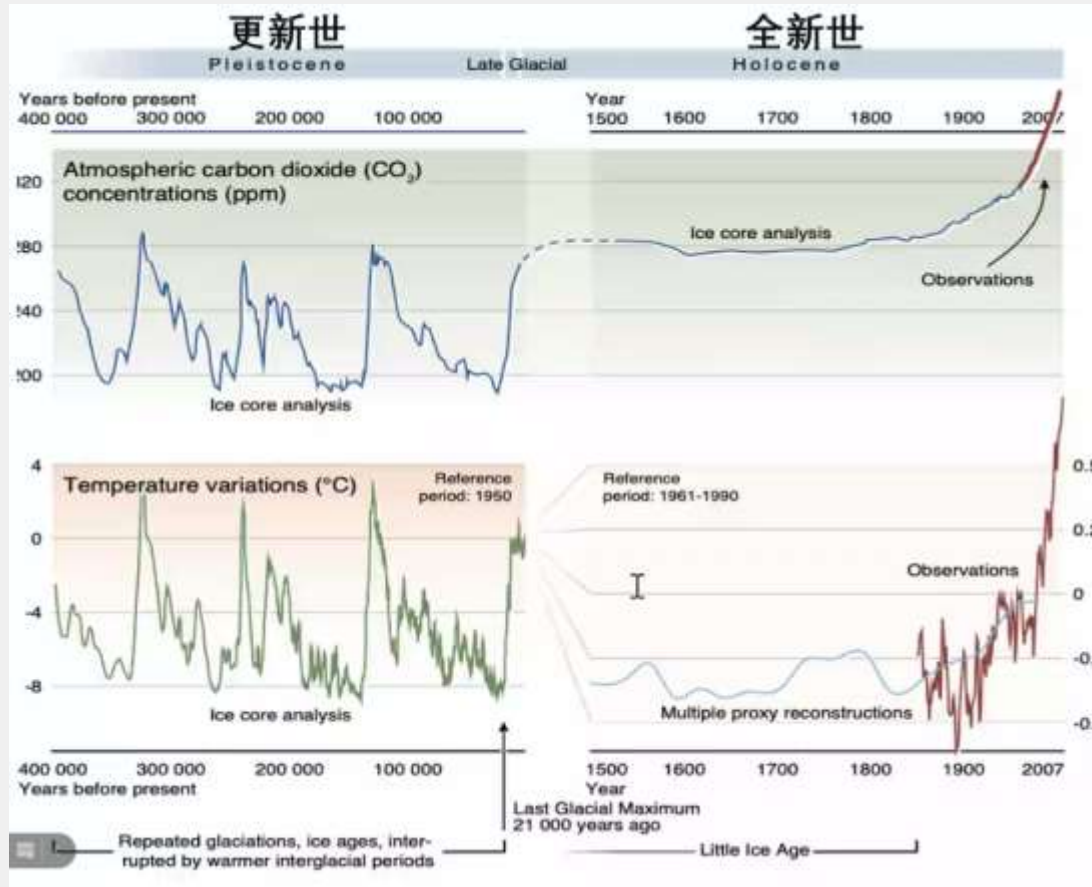
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# BACKGROUND

## Climate Change

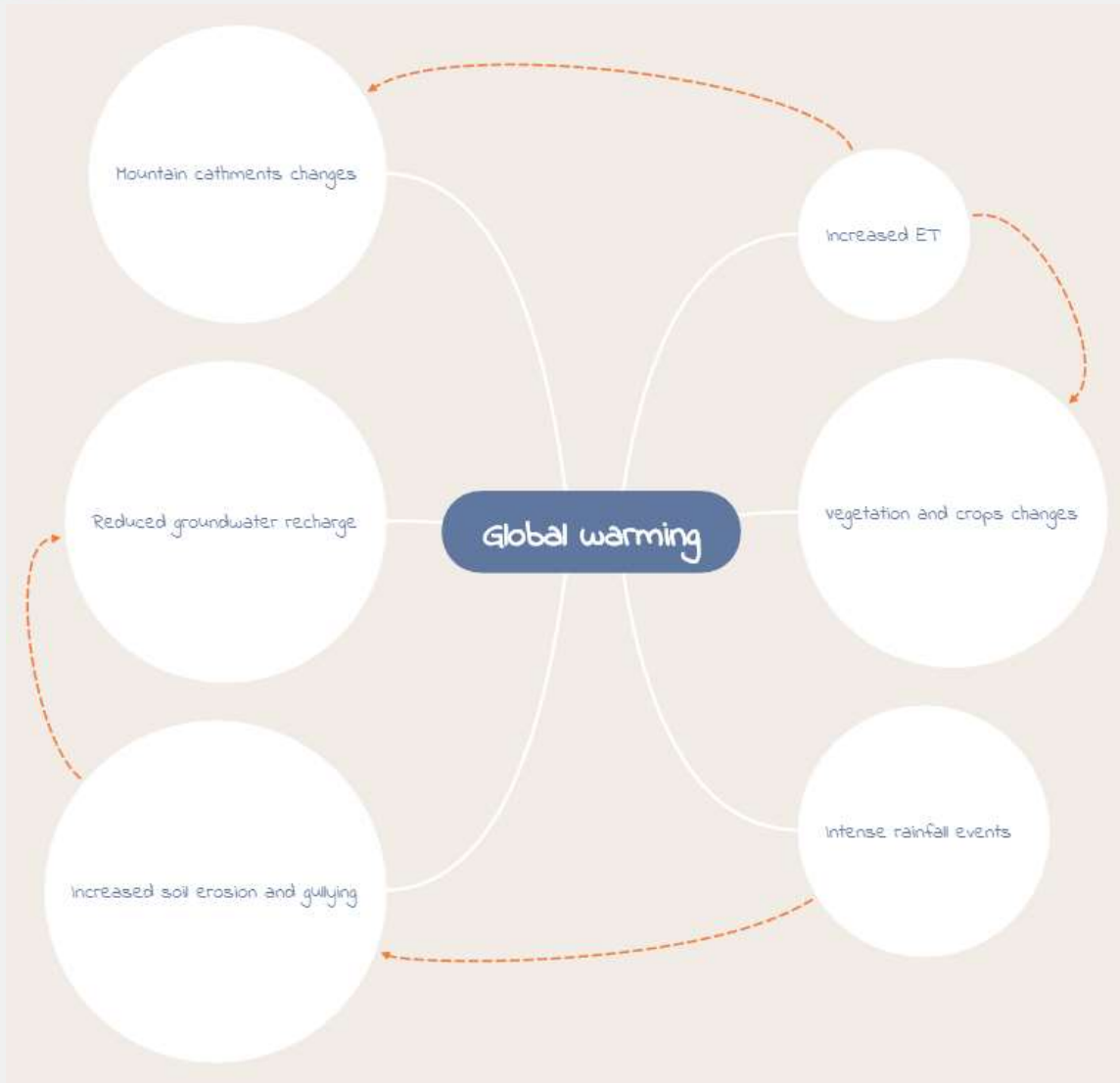


- ✓ Global warming;
- ✓ Increased atmospheric carbon dioxide.





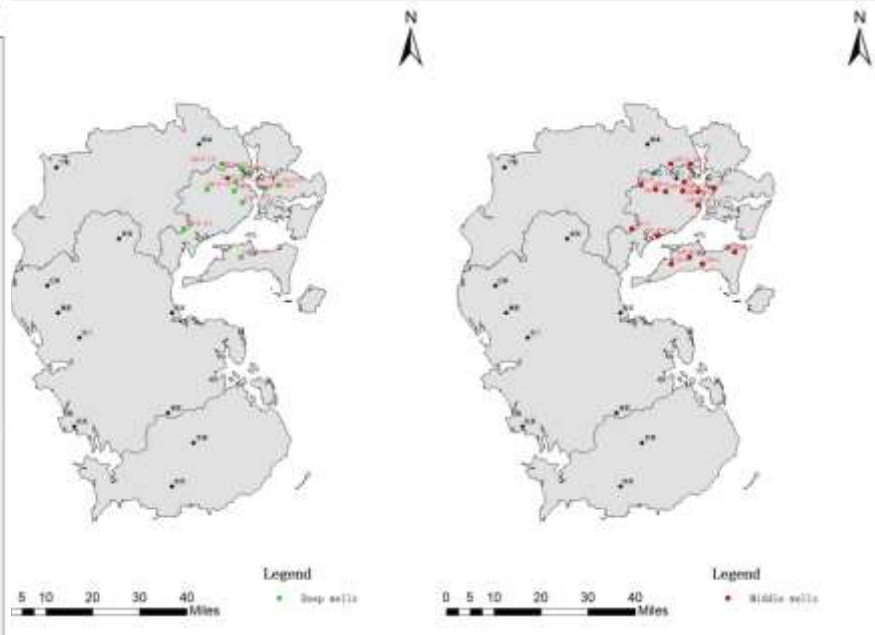
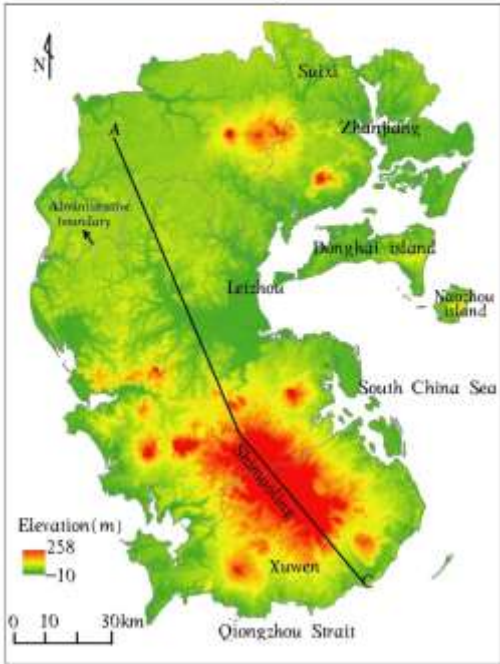
# Water Recycling Ecosystem



- ✓ **Surface-water droughts;**
- ✓ **Hydrological system;**
- ✓ **Climate change adaptation;**
- ✓ **Groundwater use;**
- ✓ **Groundwater drought.**

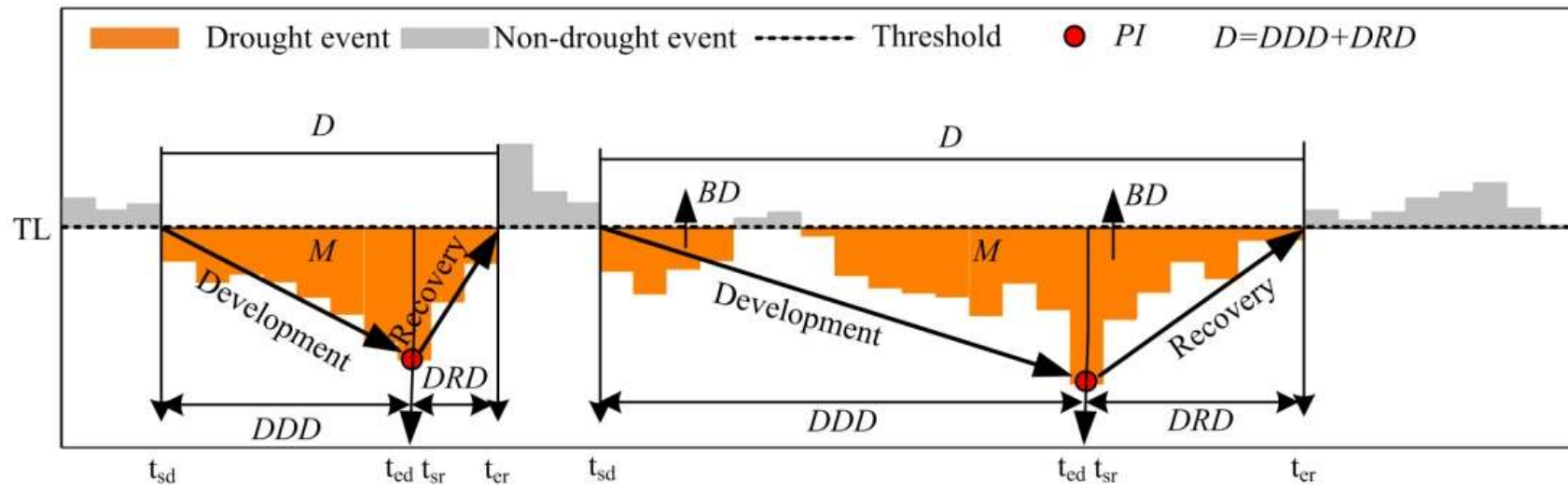


# Drought Process

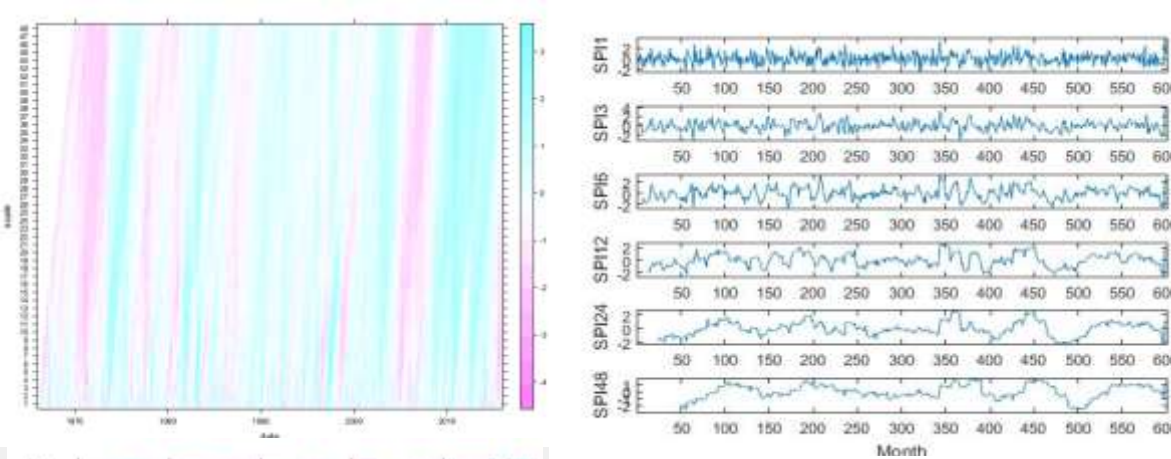


- ✓ A coastal area;
- ✓ Drought development process;
- ✓ Drought recovery process.

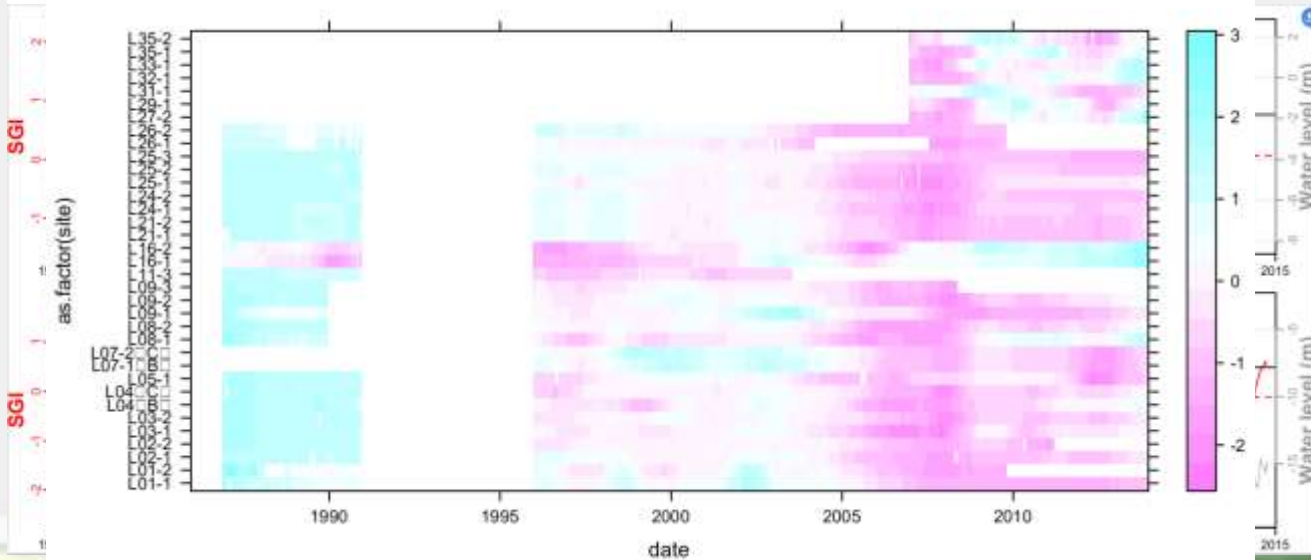
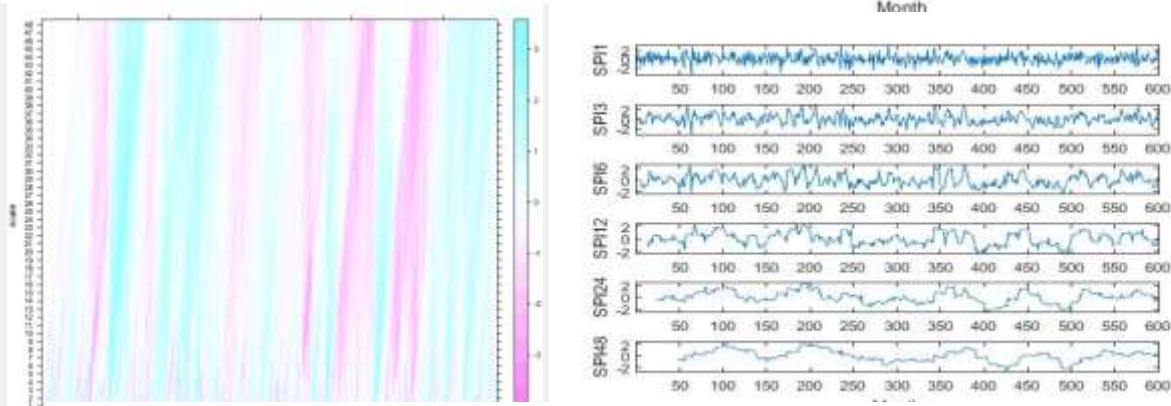
Fig.3. Location of the middle and deep groundwater wells and precipitation stations.



# Drought Analysis



- ✓ Standardized Precipitation Index;
- ✓ Groundwater drought indices;
- ✓ Meteorological drought events are more than groundwater drought events;
- ✓ The droughts were weakened when propagation to groundwater (one or two drought events).

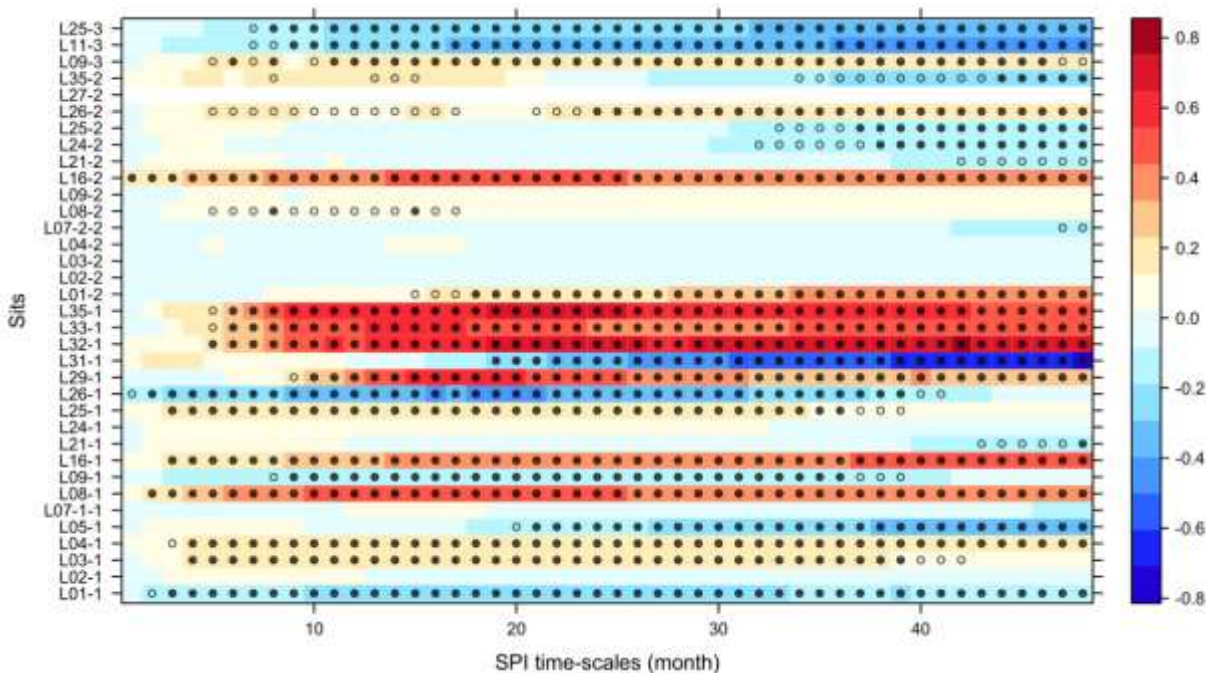
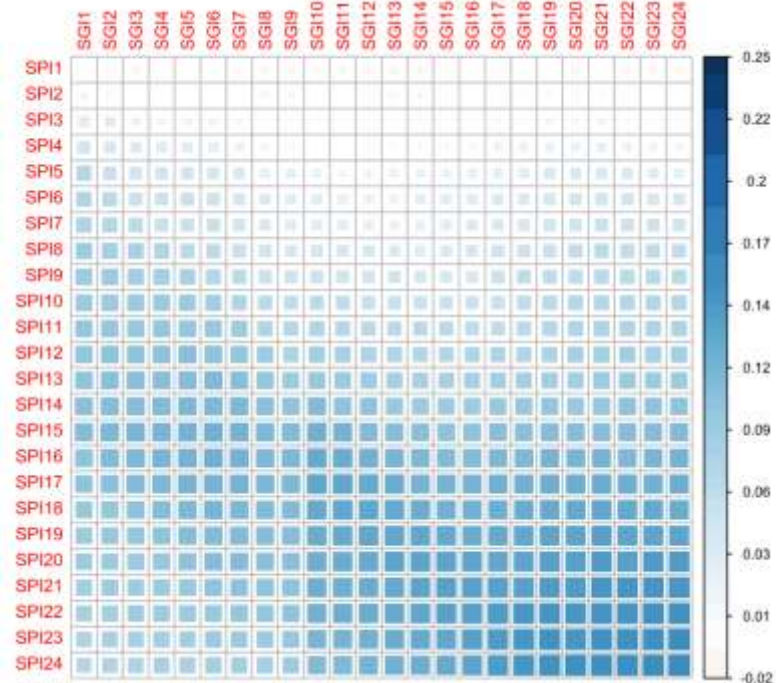


- ✓ Reasons: 1. Slow groundwater cycle;
- ✓ 2. Continuous decline of groundwater because of human exploitation;



# Comparison with meteorological and groundwater drought indices

- ✓ Groundwater drought events occurred with the continuous (> 3 months) meteorological drought;
- ✓ Not all meteorological drought lead to groundwater drought;





*Thanks for question!*

