

Seasonal planning for monsoon-related multi-hazards: using Hydro-JULES to predict landslide susceptibility in Nepal

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Future steps

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JULES-Nepal

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Sajag-Nepal

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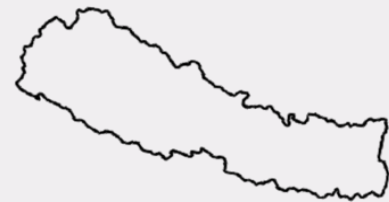
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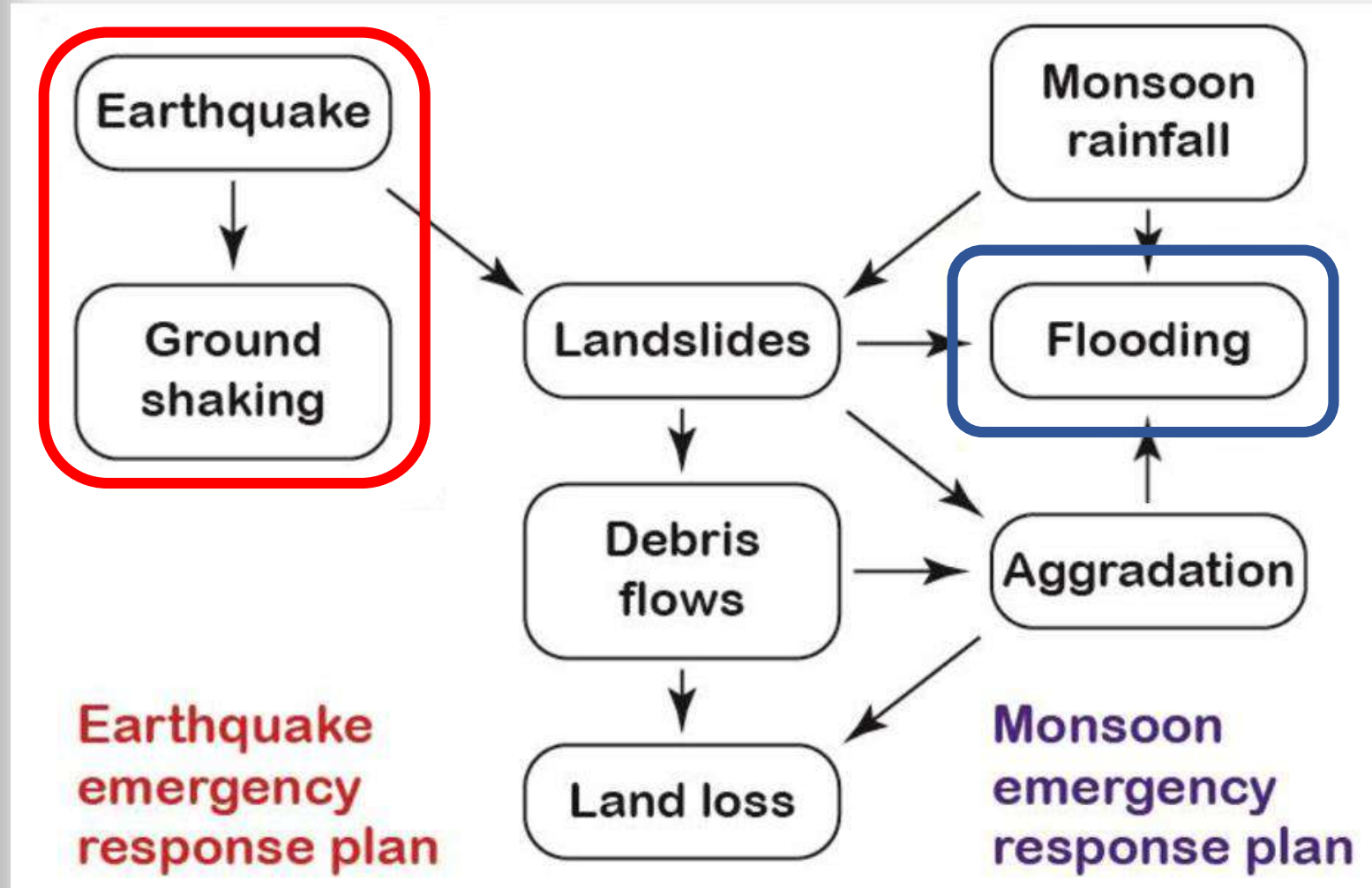


Mountains, earthquakes, monsoon rain, people, preparedness, planning



Mountain multi-hazard chain in Nepal

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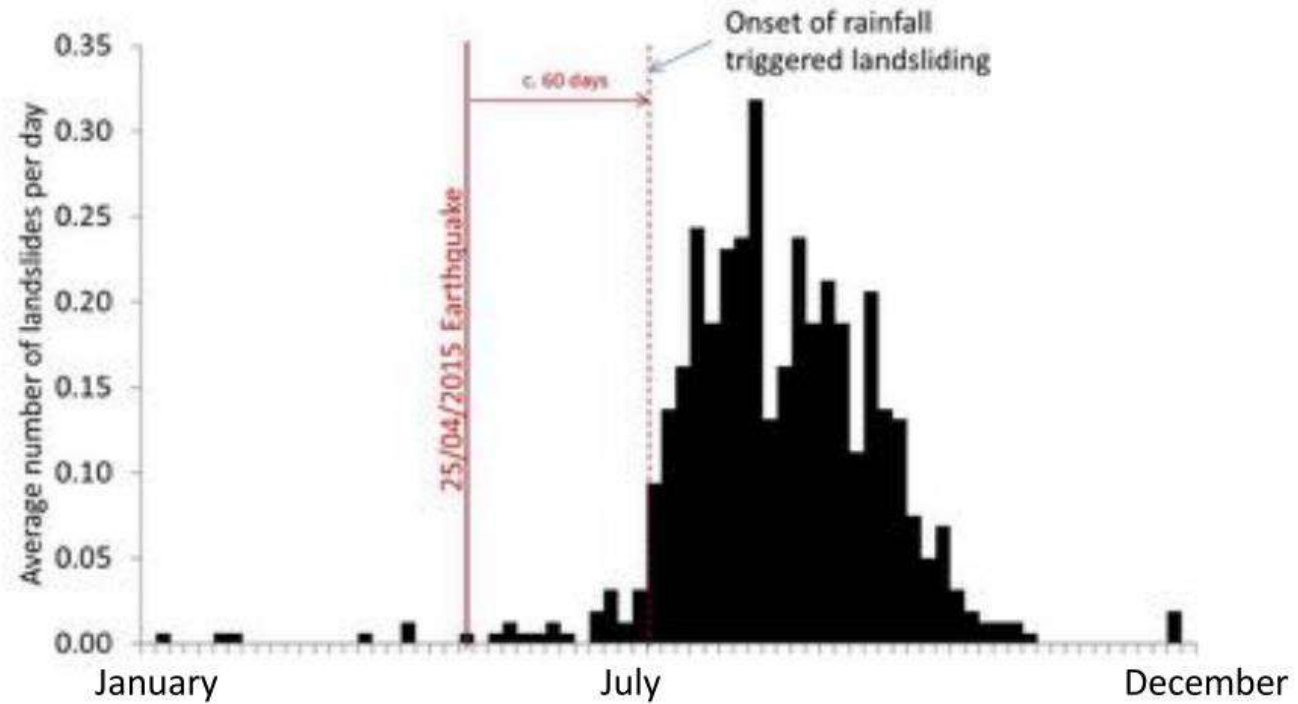
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Annual landslide fatalities



Source: D Petley



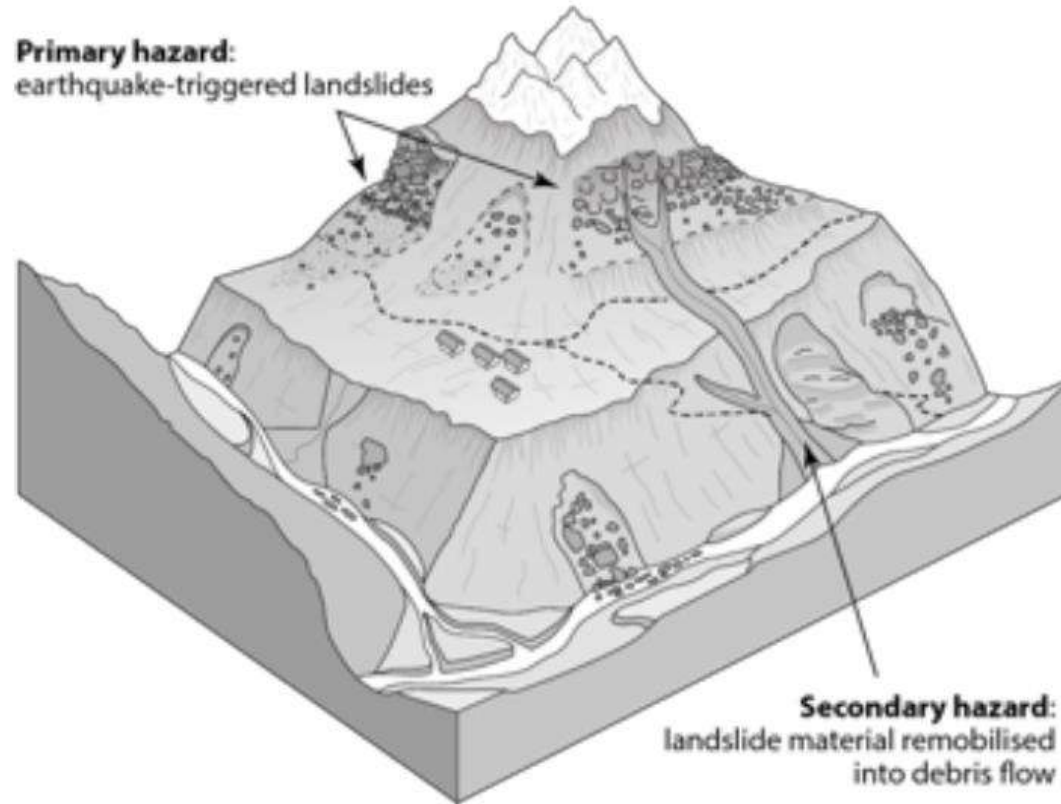
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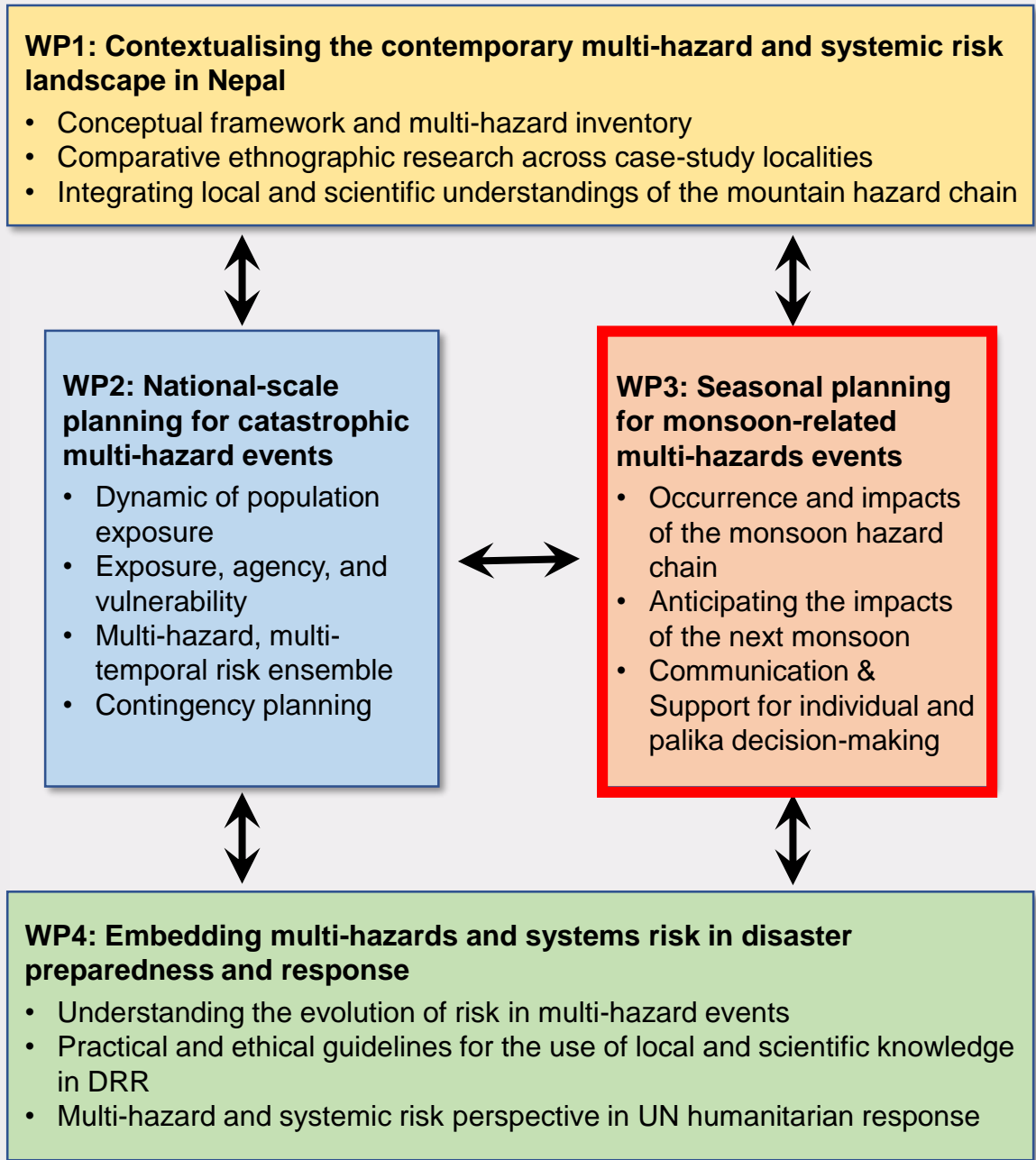
Post-EQ landslide hazard



Earthquake-triggered landslides in Nepal

Longevity & location of secondary landslide hazard
Does nature of landslide hazard change & what risk does this pose?

Introduction

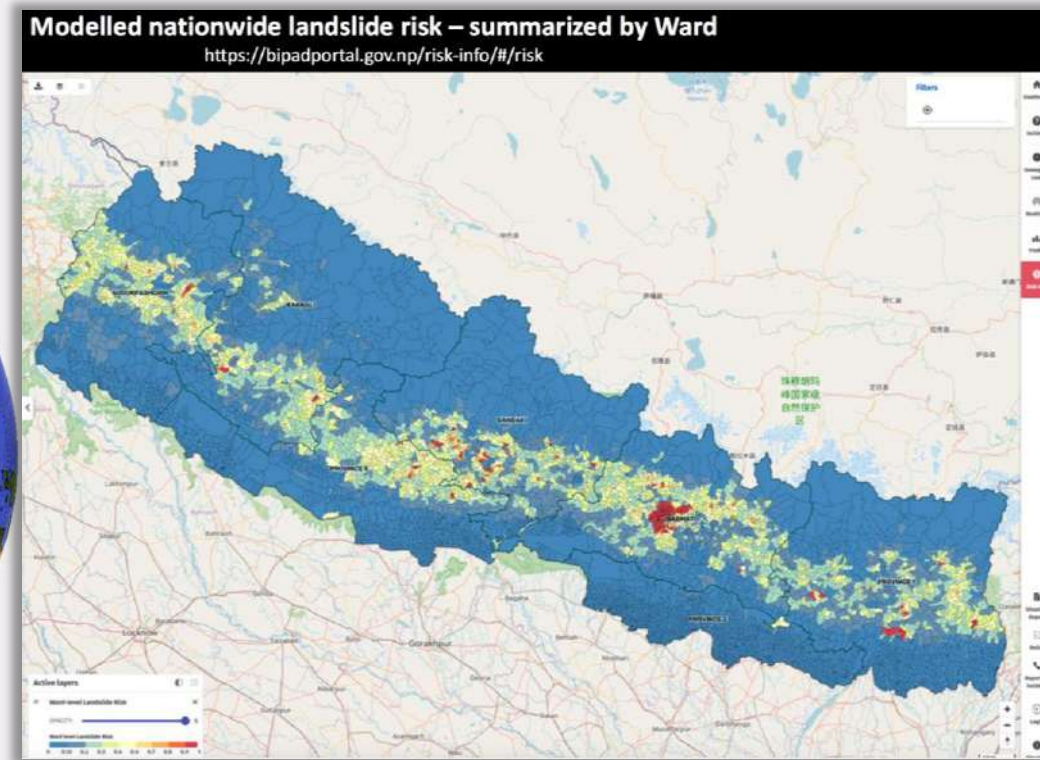
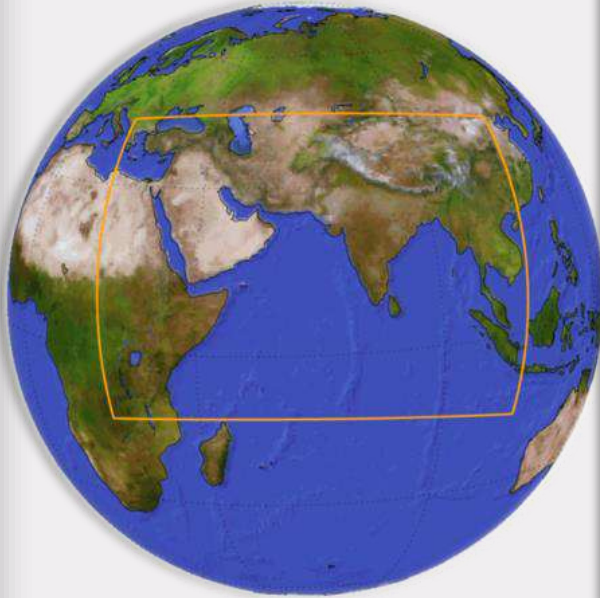


Bridging the resolution gap

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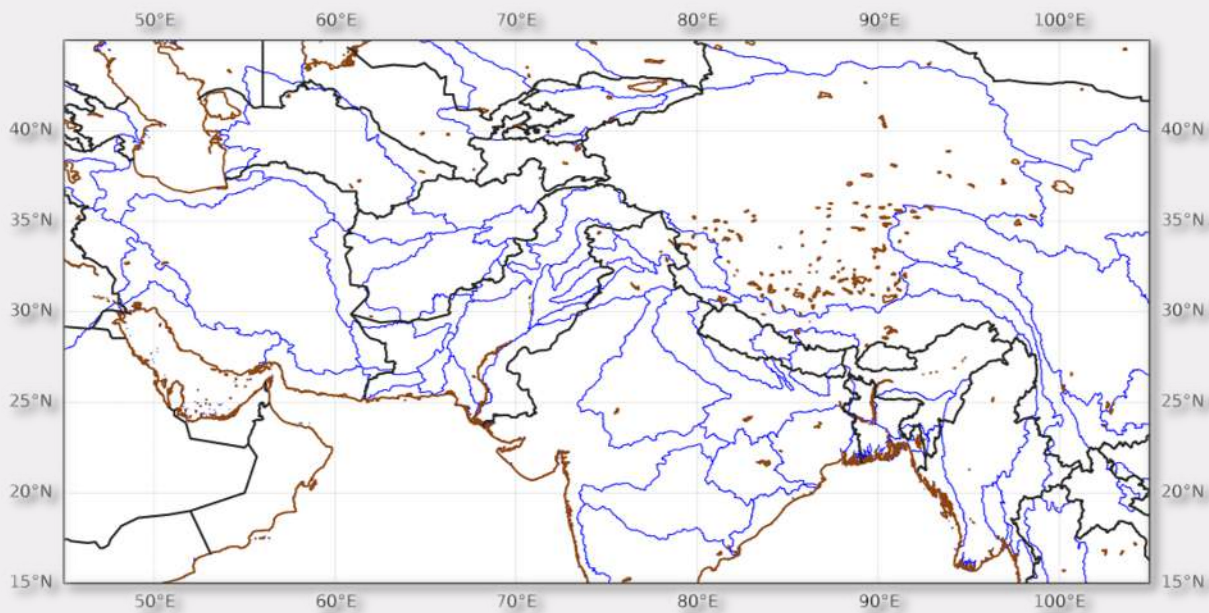
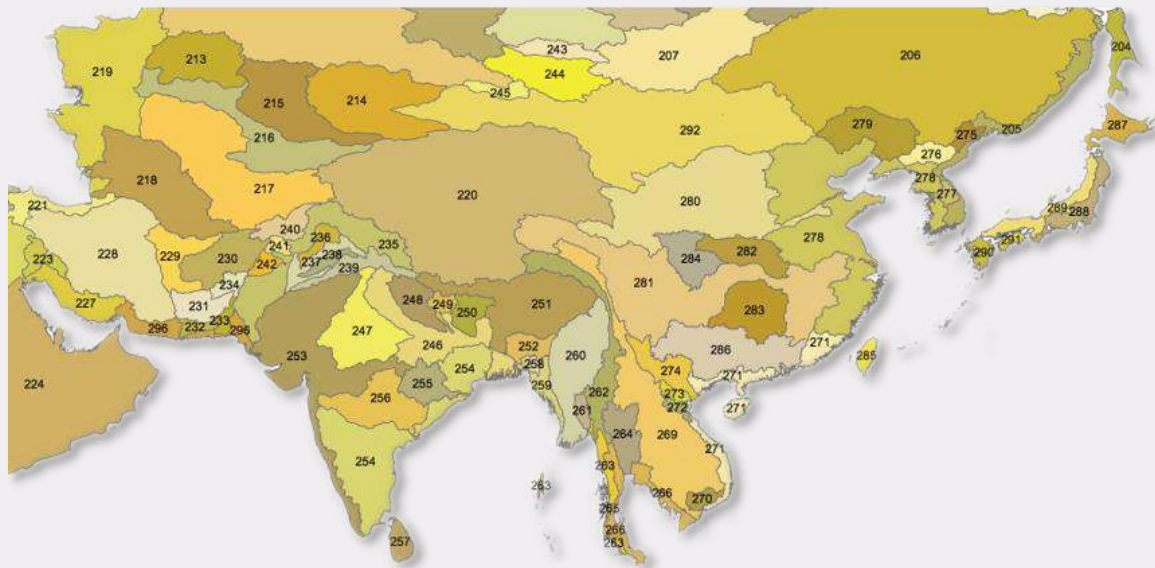


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By major river basin



By district

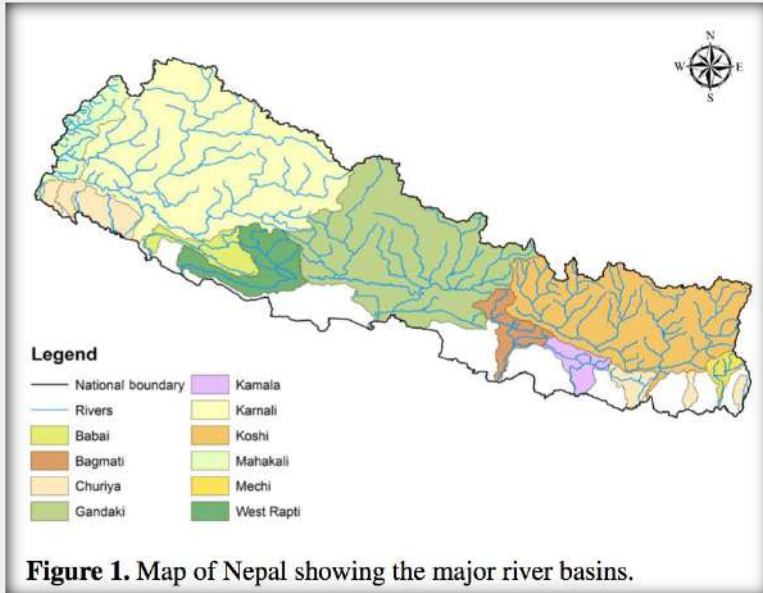
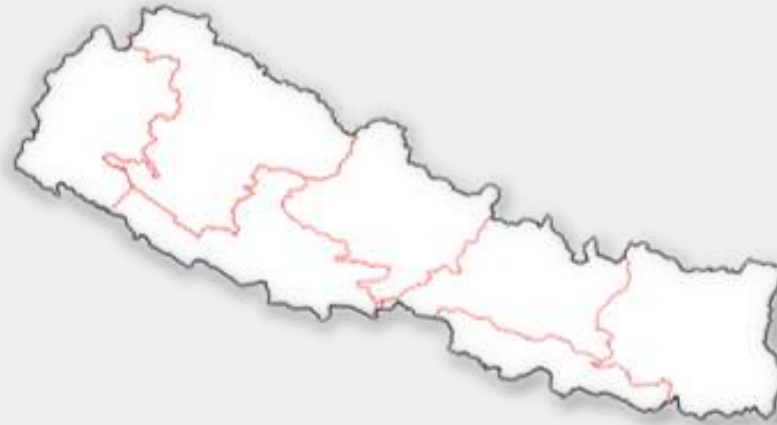
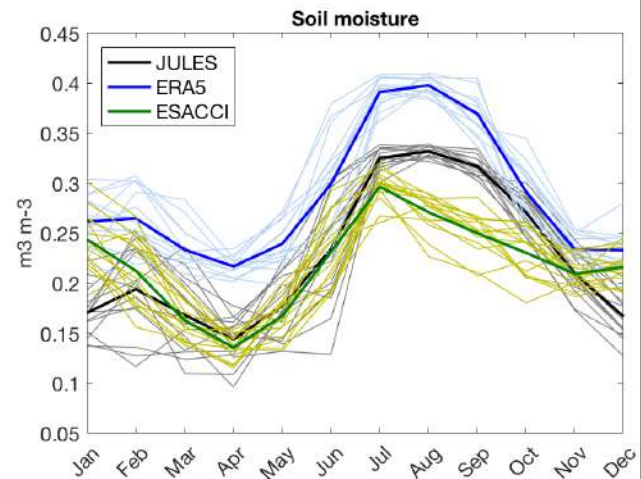
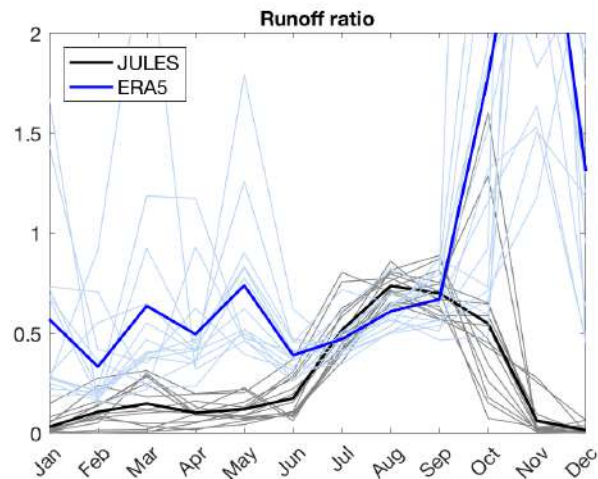
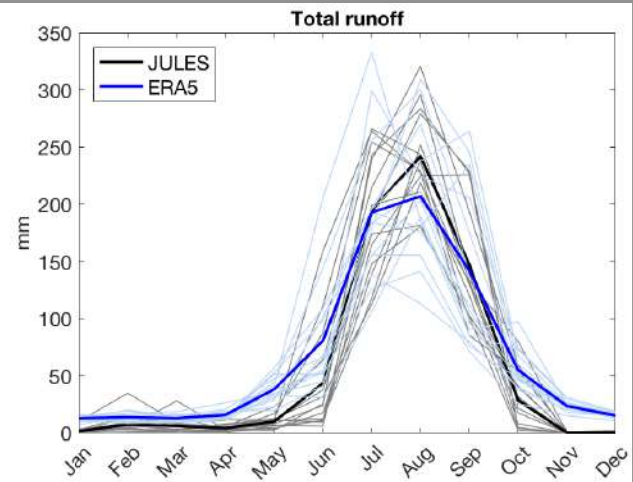
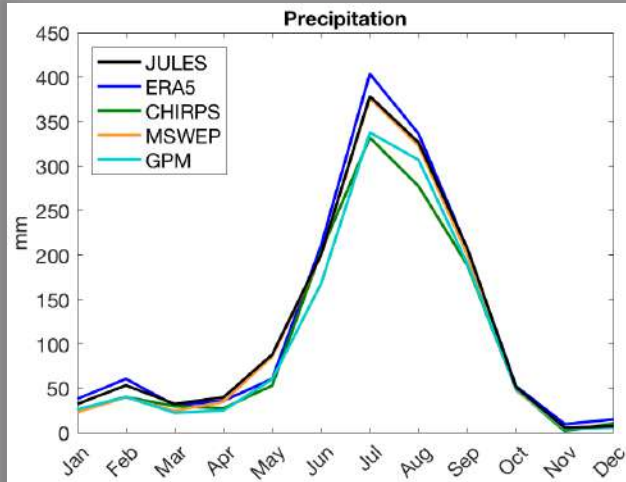
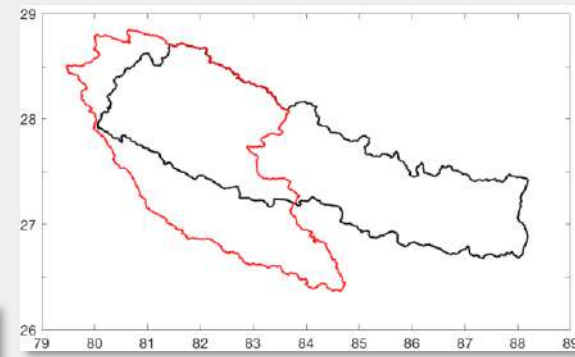


Figure 1. Map of Nepal showing the major river basins.

GOGRA RIVER (also KAURIALA RIVER)



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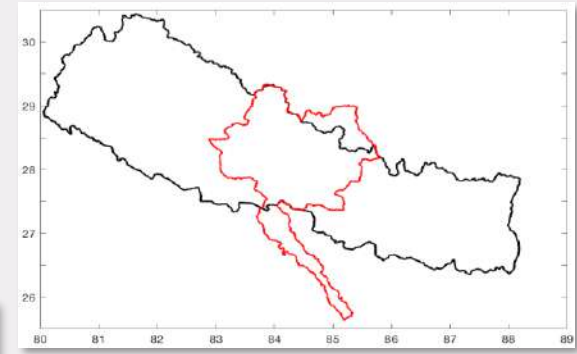
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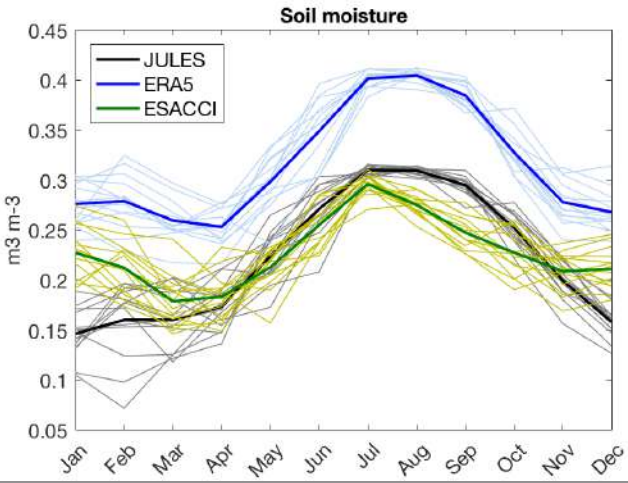
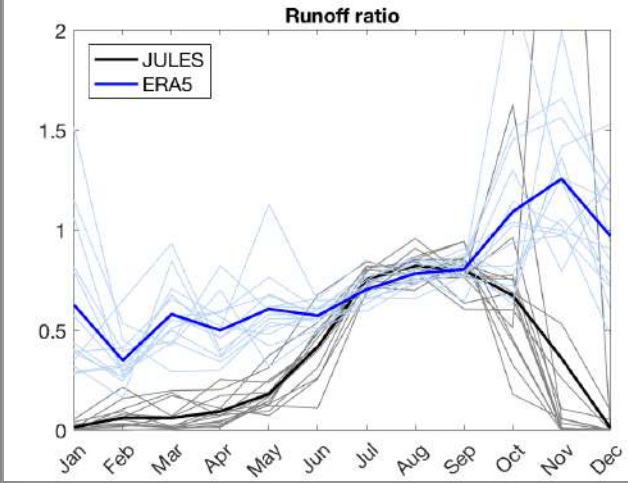
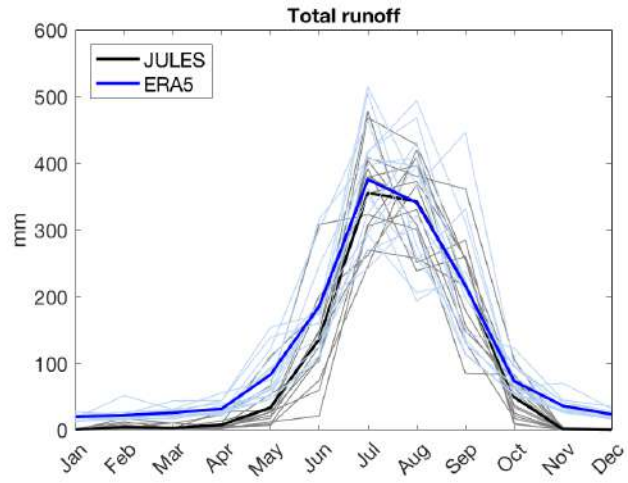
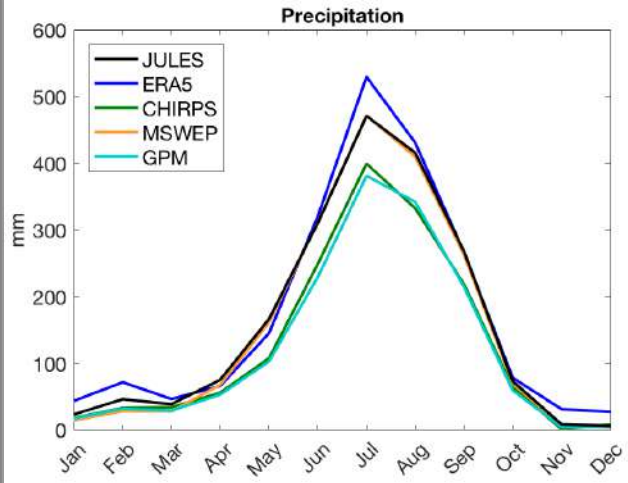
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GANDAK (also NARAYANI)

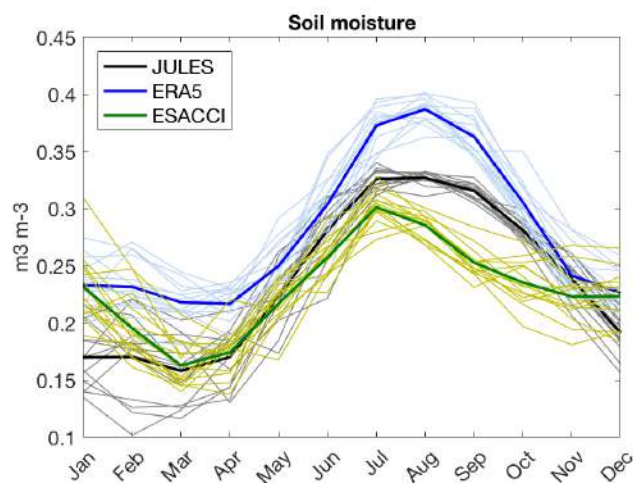
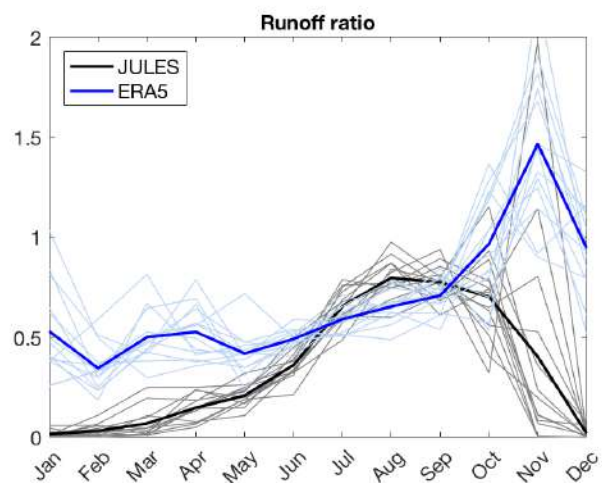
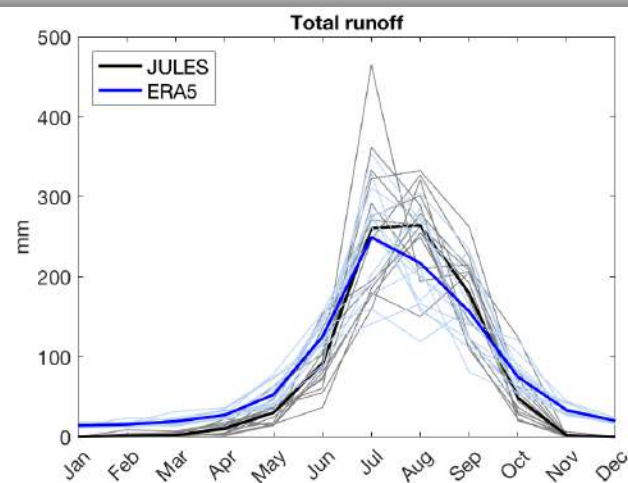
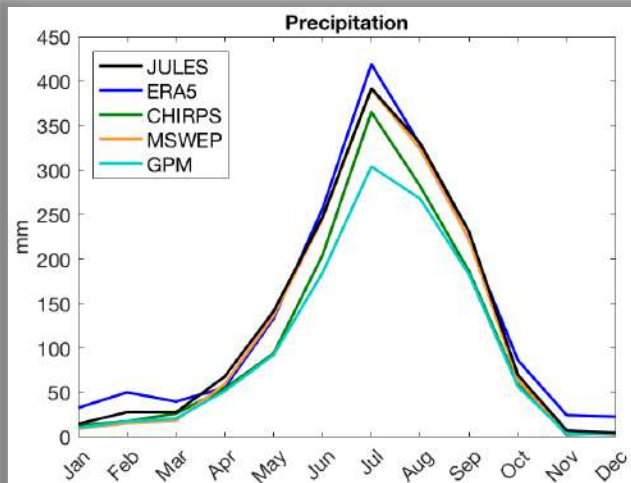
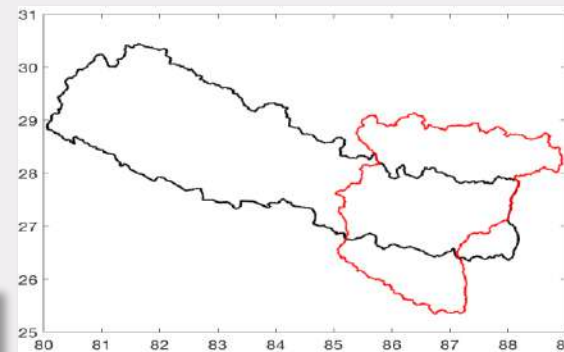


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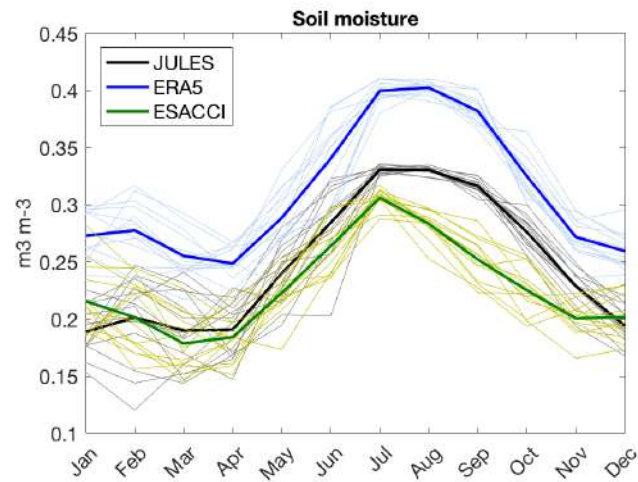
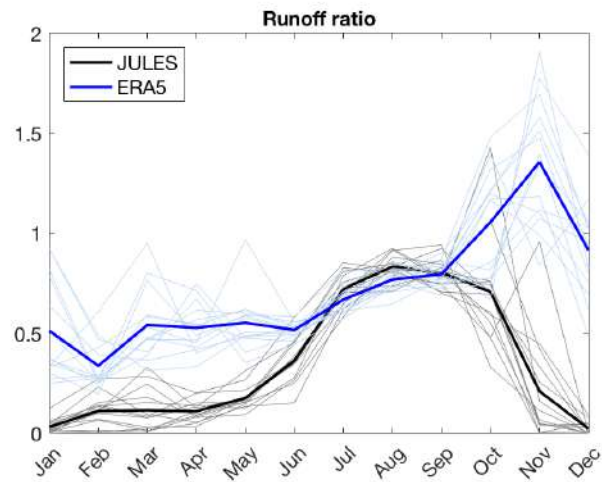
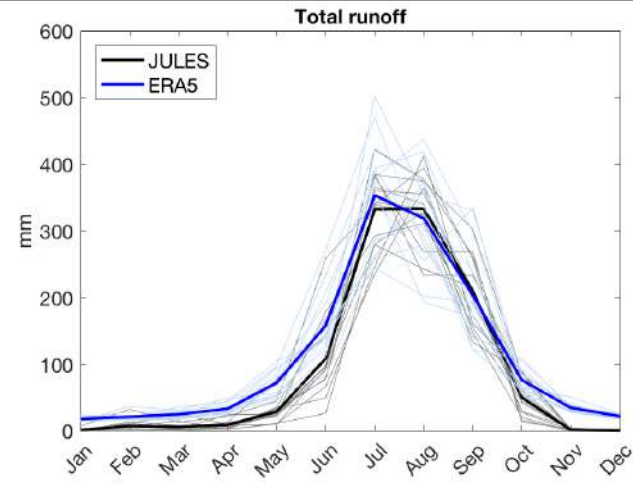
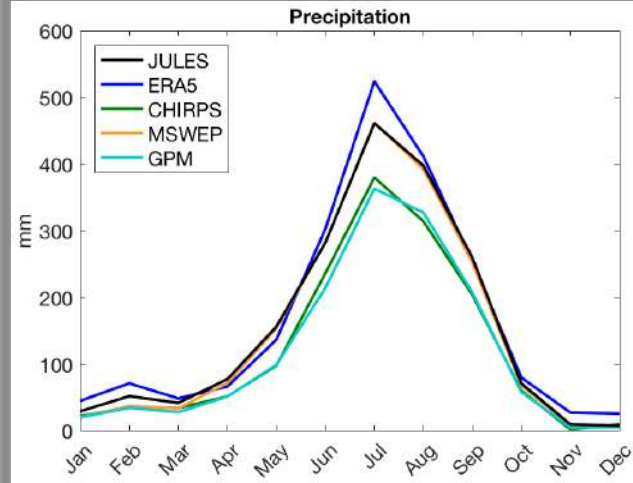
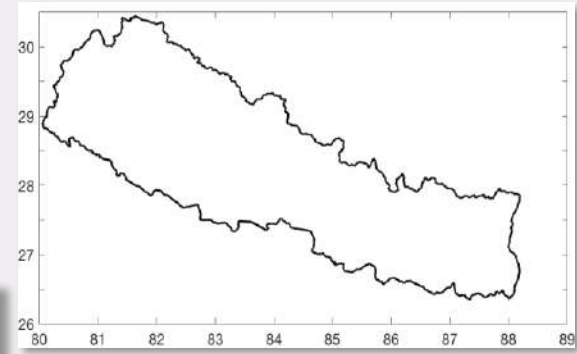
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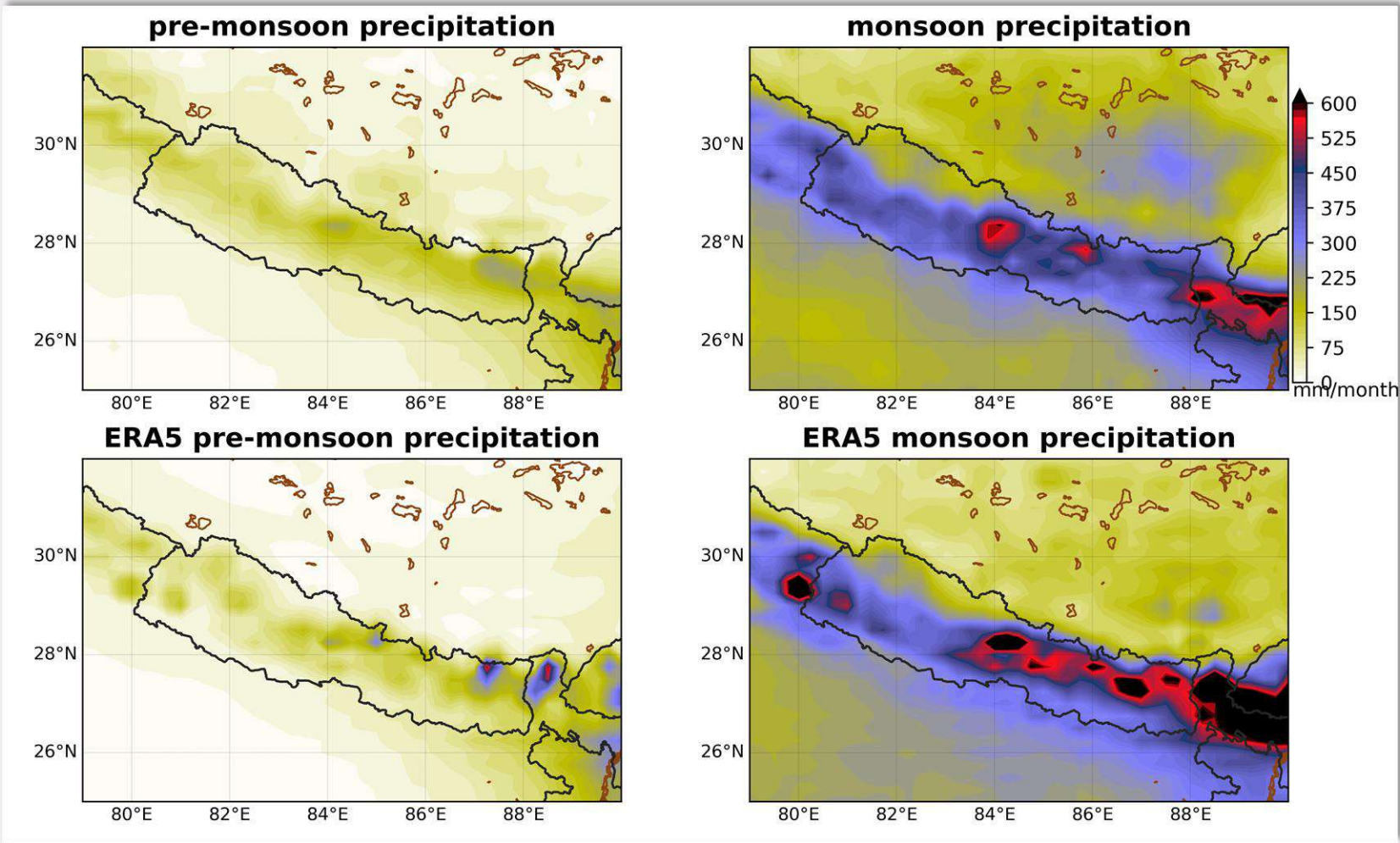
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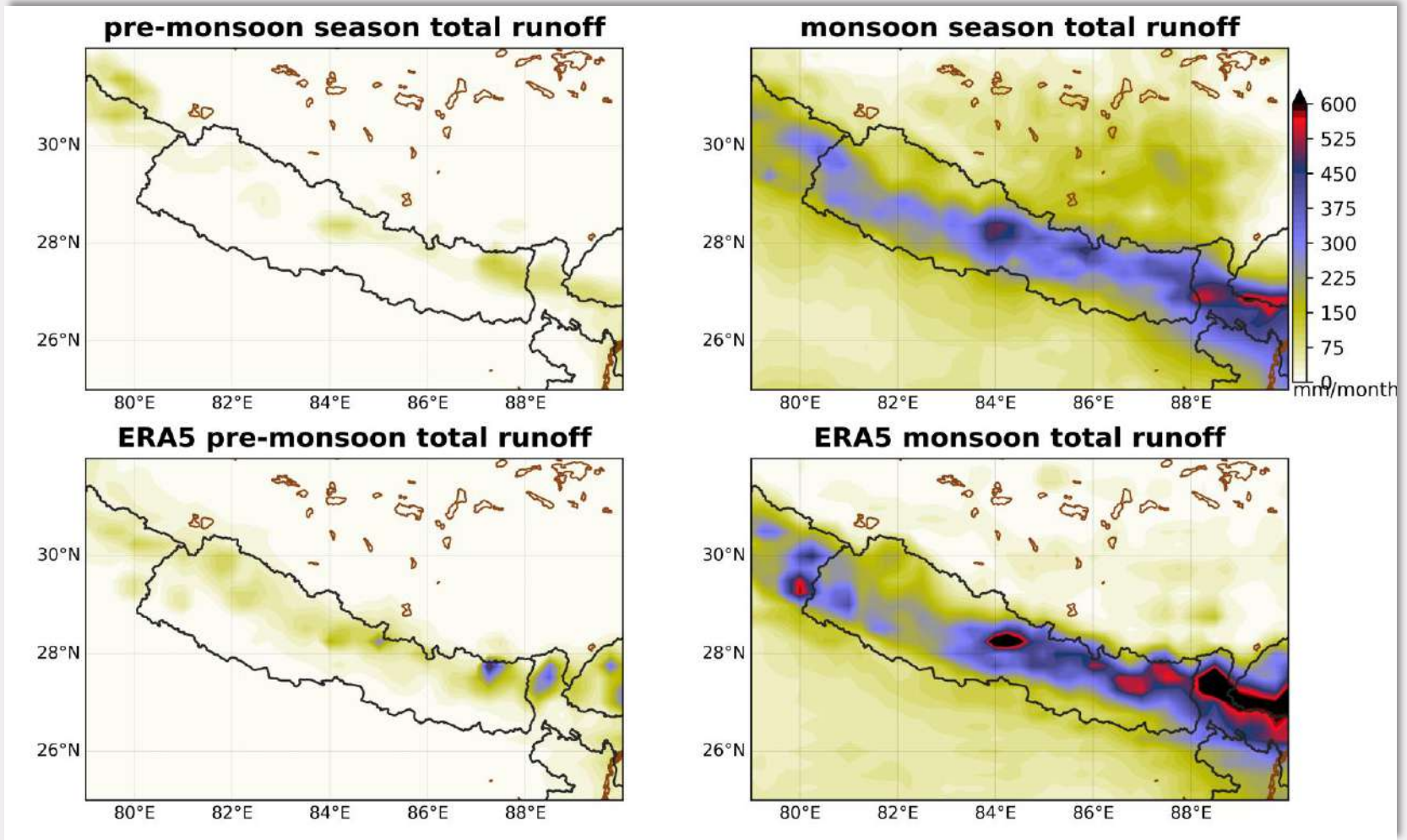
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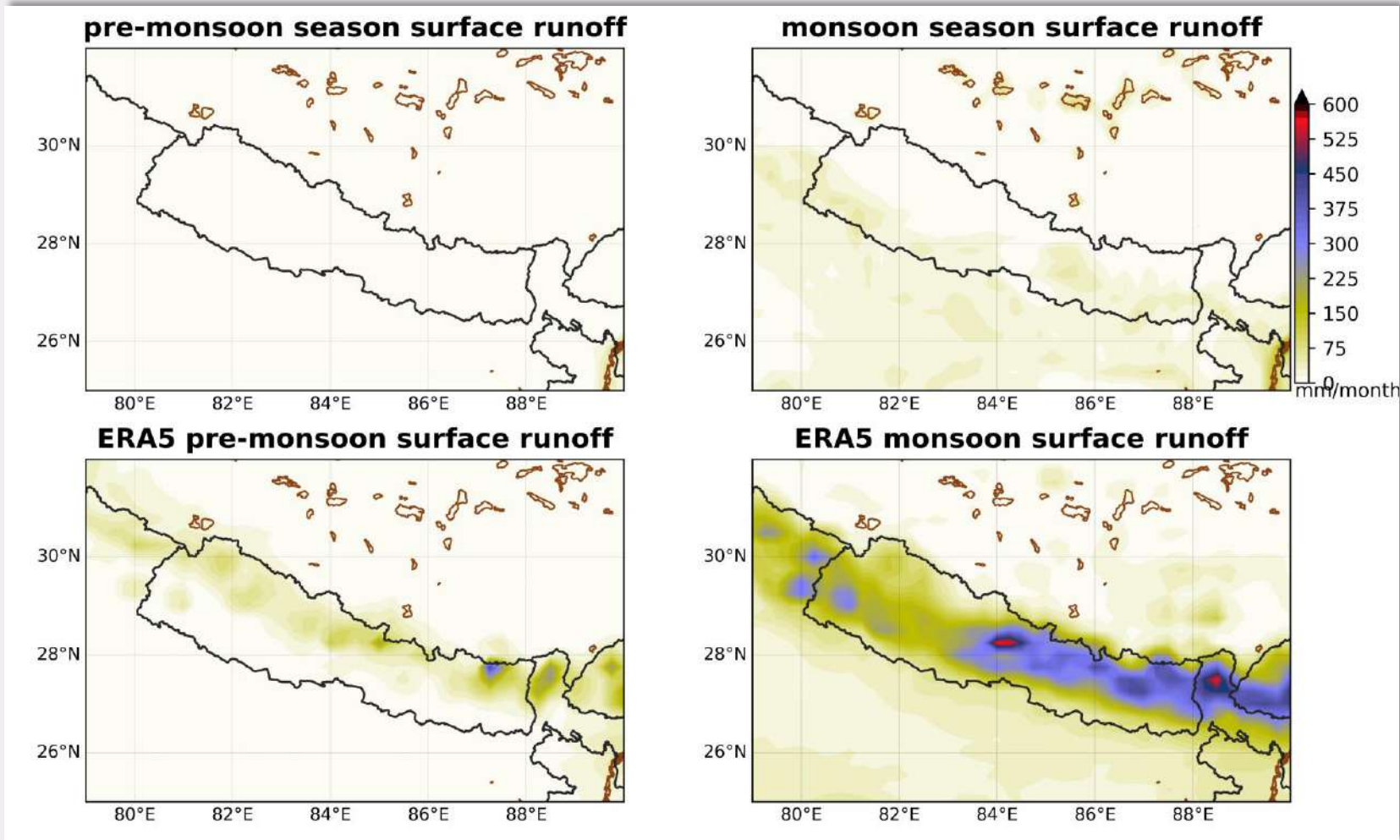
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Surface runoff



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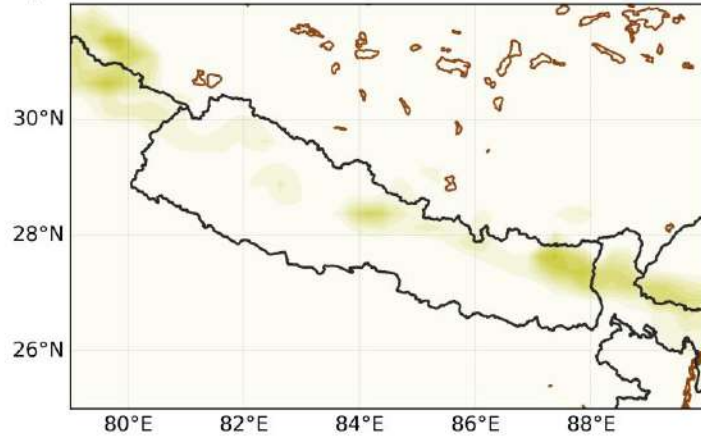
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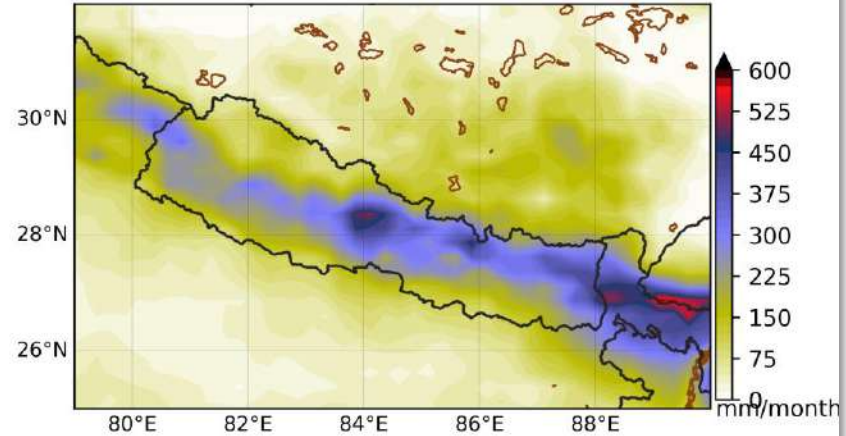
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Sub-surface runoff

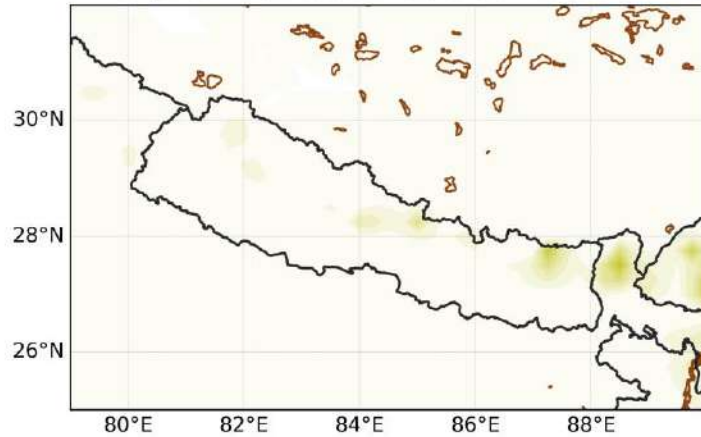
pre-monsoon season sub surface runoff



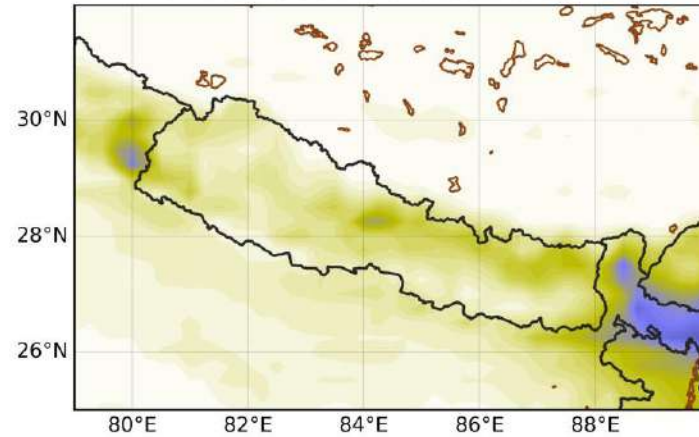
monsoon season sub surface runoff



ERA5 pre-monsoon sub surface runoff



ERA5 monsoon sub surface runoff



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- Improve model performance
 - Use seasonal-forecast/hindcast of monsoon precipitation to drive the JULES and look at the hydrological response over Nepal
- Set up a finer-resolution version of the model (to narrow the gap with the geomorphology community)
- Establish a better link between meteorological, hydrological, geomorphological conditions and landsliding

