Tentative outline of the modules

**Participants will be polled on preferences*

Week 1 - Day 1: General Session Modules (3 hours)

Module 1 Introduction (Bishal Bhardwaj)

Module 2 Climate change risk and mountain development (Prof. Rajesh K Rai, Ph.D.)

Module 3a* Components of Risk & Reading Maps (Darcy Glenn)

Discuss the components of risk

- Hazard
- Vulnerability
- Capacity

Look at maps that show the 3 components of risk

- Identify components
- Talk about what is important on the maps

Module 3b* Introduce What Climate Models Can and Cannot Do (Darcy Glenn)

Importance of Ensembles

Temporal Resolutions

- If timeframes are too short the results will not be accurate
- Best to look at data over time
- 30 years is best

Spatial Resolutions

- Complex landscapes do better with high resolution
- Mountains are more difficult than flat plains

Very good at rates of change

- Basic methodology-conceptual

Module 3c* Risk and Social Communication (Speaker To Be Decided)

Module 4 Recap and Q&A (Bishal Bharadwaj, Prof. Rajesh K Rai, Darcy Glenn)

Homework **Technical participants ONLY**: Sign up for Google Earth Engine

Week 2 - Day 1: Technical Session (2 hours)

Module 1 Ensure All Students Able to Log On (Darcy Glenn)

Module 2 Introduction to Google Earth Engine (Darcy Glenn)

Upload files from computer & catalogue

Basic commands

Display data

Calculate number of days above 25°C (Demonstration)

- Students can choose from 25°C, 30°C, 35°C, 40°C, or 45°C

Module 3 Recap and Q&A (Bishal Bharadwaj, Prof. Rajesh K Rai, Darcy Glenn)

Homework Upload daily data before next session

It may take 1 hour per dataset, there will be 6 datasets, please start early

Week 2 - Day 2: Technical Session (2 hours)

Module 1a* Using daily data: Projecting extreme heat days (Darcy Glenn)

- Review projection methodology concept
- Wetbulb temperature: Heat & humidity measurement that can be related to health
- Use Google Earth Engine to project days above 28°C wetbulb
- Export data

Module 1b* Using daily data: Projecting extreme rainfall (Darcy Glenn)

- Review projection methodology concept
- Precipitation: Threshold for extreme is set at the to 5% of rainy/snowy days
- Use Google Earth Engine to project changes in the amount of rain that falls in the top 5% of rainy/snowy days
- Export data

Module 1c* Using daily data: Projecting night temperatures (Darcy Glenn)

- Review projection methodology concept
- Minimum temperature: When the nighttime temperature is too high, our bodies can't recover during a heatwave
- Use Google Earth Engine to project changes to heat waves with high nighttime temperatures
- Export data

Module 1d* Using daily data: Who is affected by high temperatures? (Darcy Glenn)

- Review projection methodology concept
- Maximum temperature: Thresholds as seen in module, but now with daily data
- Import information from Google Earth Engine's Catalogue to see who will be affected
- Export data

Module 2 Recap and Q&A (Bishal Bharadwaj, Prof. Rajesh K Rai, Darcy Glenn)

Week 3 - Day 1: Technical Session (2 hours)

Module 1 Student led map making

Module 2 How risk mapping skills can help society (Bishal Bharadwaj, Prof. Rajesh K Rai, Darcy Glenn)

Module 3 Recap and Q&A (Bishal Bharadwaj, Prof. Rajesh K Rai, Darcy Glenn)

Week 3 - Day 2: Technical Session (2 hours)

Module 1 Presentations

Module 2 Recap and Q&A (Bishal Bharadwaj, Prof. Rajesh K Rai, Darcy Glenn)