# Glaciers Monitoring using space technologies

T5S1 Dr Amjad Ali

Present ations of the session

- Increasing risk of glacial lake outburst floods across the Hindu Kush Himalayan region, Mandira Singh SHRESHTA
  - Application of space technology for mass balance studies in patagonian region by Ailin Sol ORTONE
    - Appraising the Potential Implications on Vulnerable GLOF Sites in High Mountain Asia through Geospatial Techniques: A Case Study of Northern Pakistan, Syeda Saleha Fatima, online
- Utilizing NASA Remote Sensing and Hydrological Modeling for Assessment of Water Resources and Cascading Geo-Hazards in Peru, Yang HONG, University of Oklahoma, online

## Gaps to fill in....

- > Spatiotemporal studies
- > Quantative assessment of climate change
- > Regional simulations for probabilitic and predictive mapping
- Structural properties of snow packing
- > Improved insitu data
- > Structural aspects of glaciers
- Studying the causes and effects
- > Glaciers depletion monitoring
  - Snow melt and runoff modelling
- Study atmospheric conditions of the cryosphere

### Conclusions

> Space technology is highly effective to study highly fragile and dynamic phenomena like glaciers monitoring and modelings

> Multi-temporal data is helpful in estimation of current state and future predictions of the cryosphere

It is vital to have spatiotemporal information about pressure, state and impacts

Climate change impacts is critical in case of glaciers so emergency arrangements shall be implaced for effective protection of this highly fragile system

Glaciers hazards are critical information for protections of households and properties

> Quantatative assessment/modelings of mass balance is important to know the systems in detail

### Recommendations

- Effective institutional arrangements
- Ensuring Continuity of Future Observations
- Adopting and Reporting climate Indicators
- Ensuring Accuracy of Climate Observations
- Arrange insitu data
- Sharing of data & experiences of different regions





## Thank You

