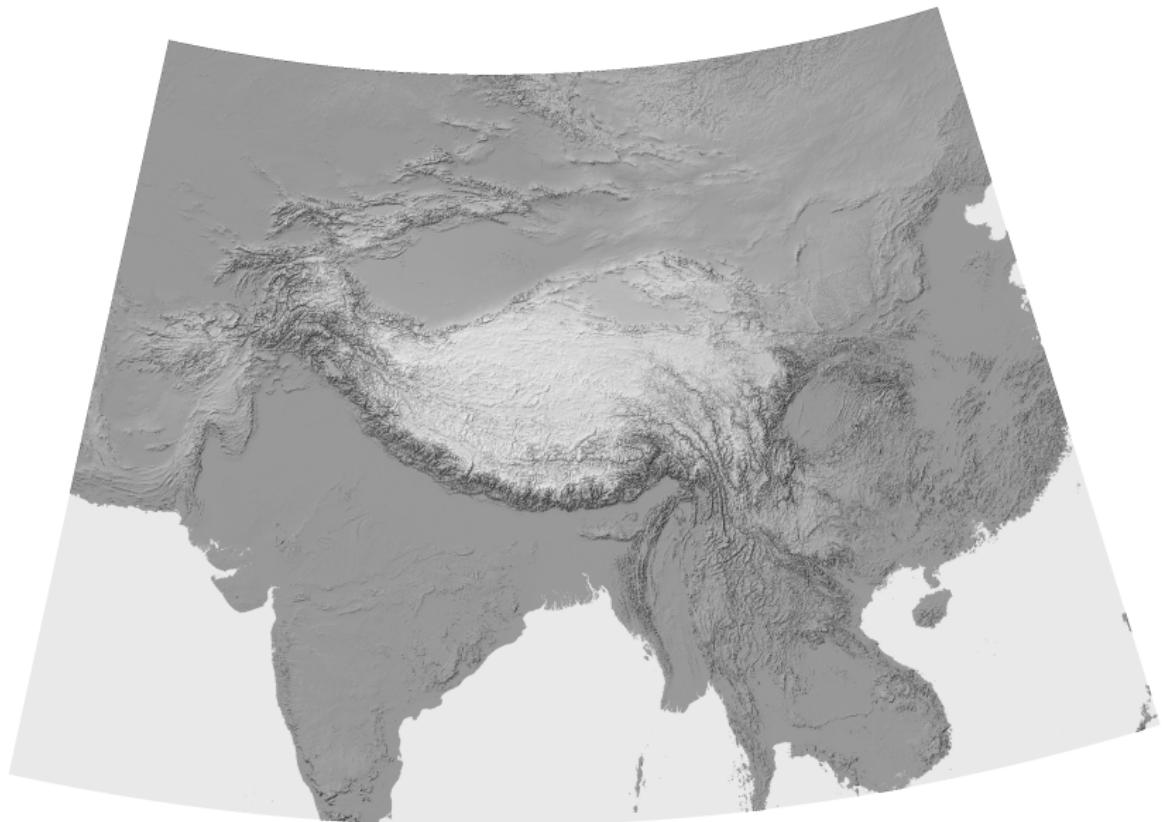


Results of recent glacio-hydrological research in the Hindu Kush - Himalaya

9 November 2014

International Centre for Integrated Mountain Development

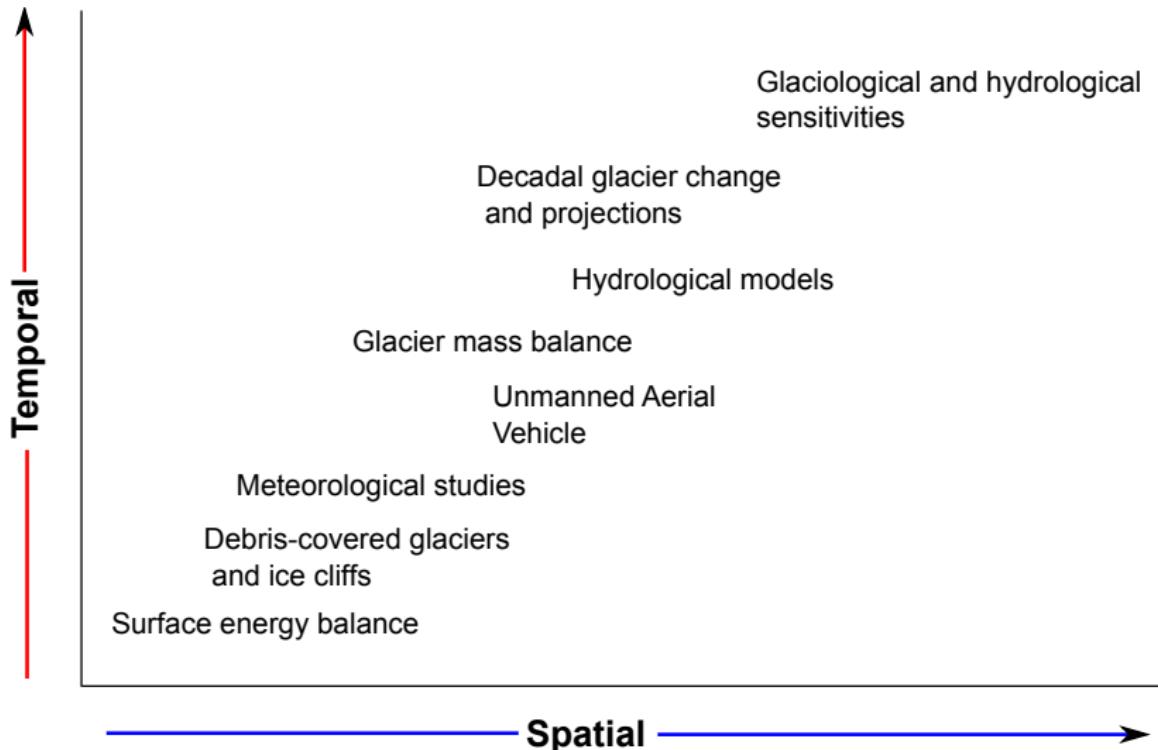
Kathmandu, Nepal



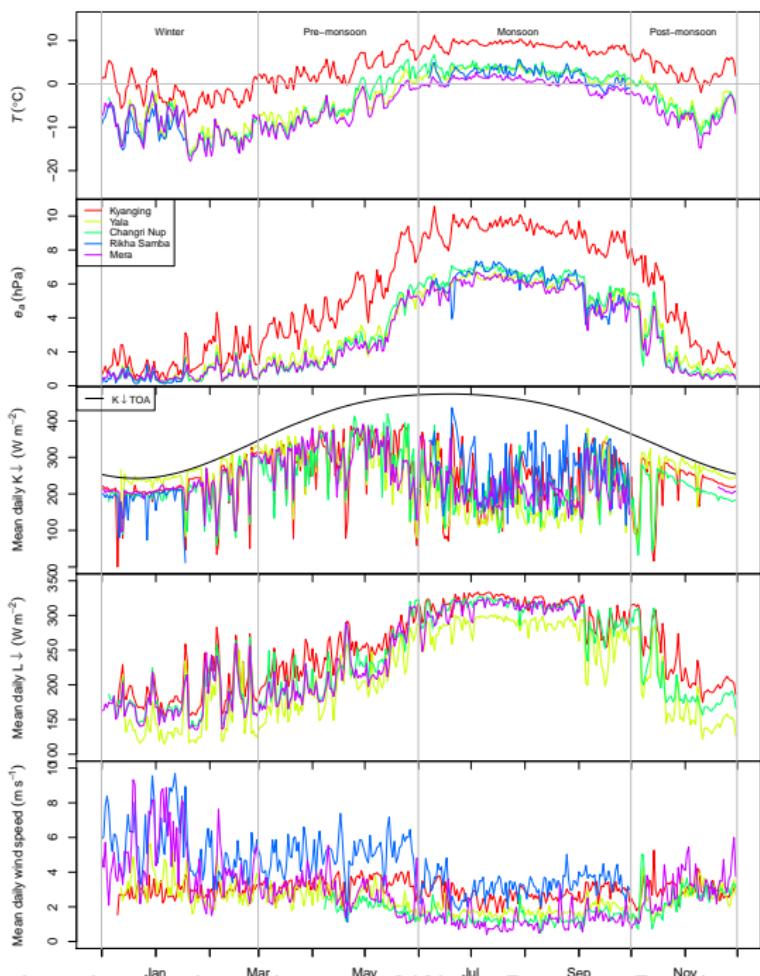
Four-year project (2010-2014) and extension funded by
Norwegian Ministry of Foreign Affairs:

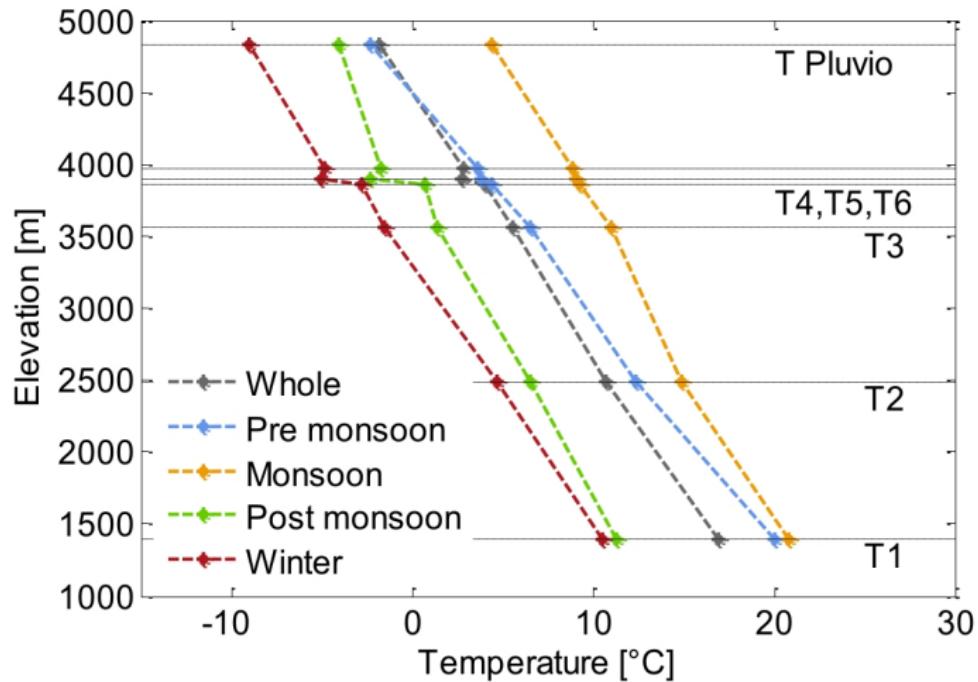
1. Glacier monitoring
2. Glacier hydrological/meteorological monitoring and modelling
3. Remote sensing of snow cover and glaciers
4. Training
5. Knowledge dissemination

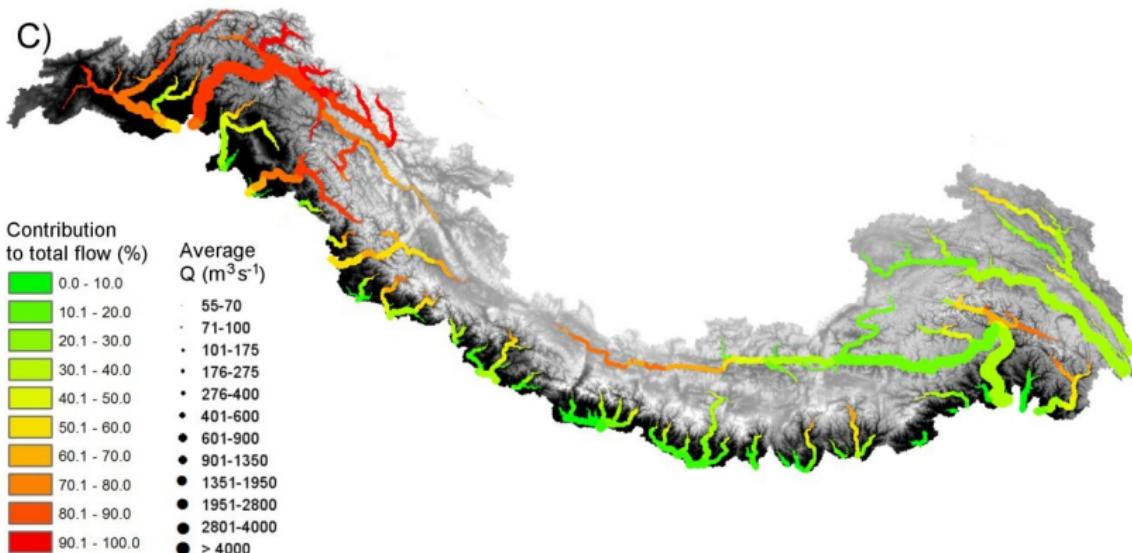
Partners: ETH, Utrecht Univ., Univ. Grenoble, NVE, DHM,
KU, Univ. Zurich, ...

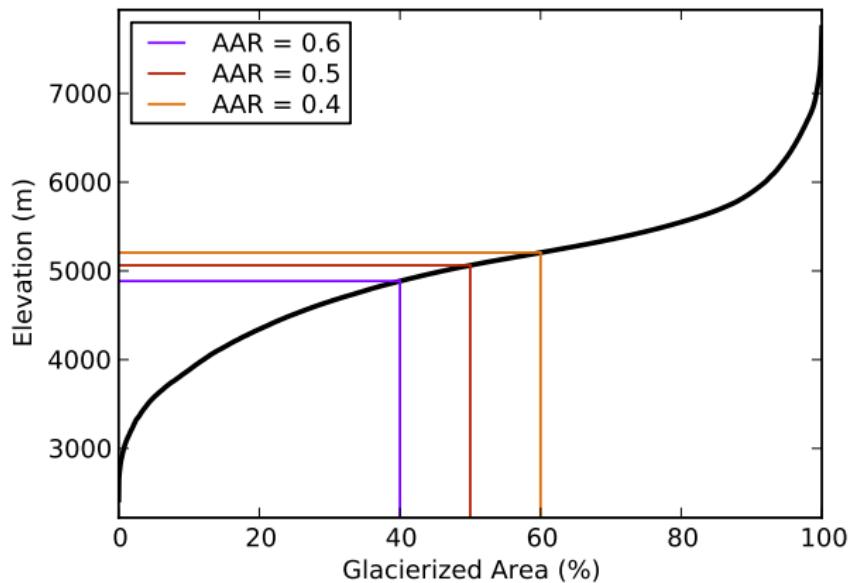


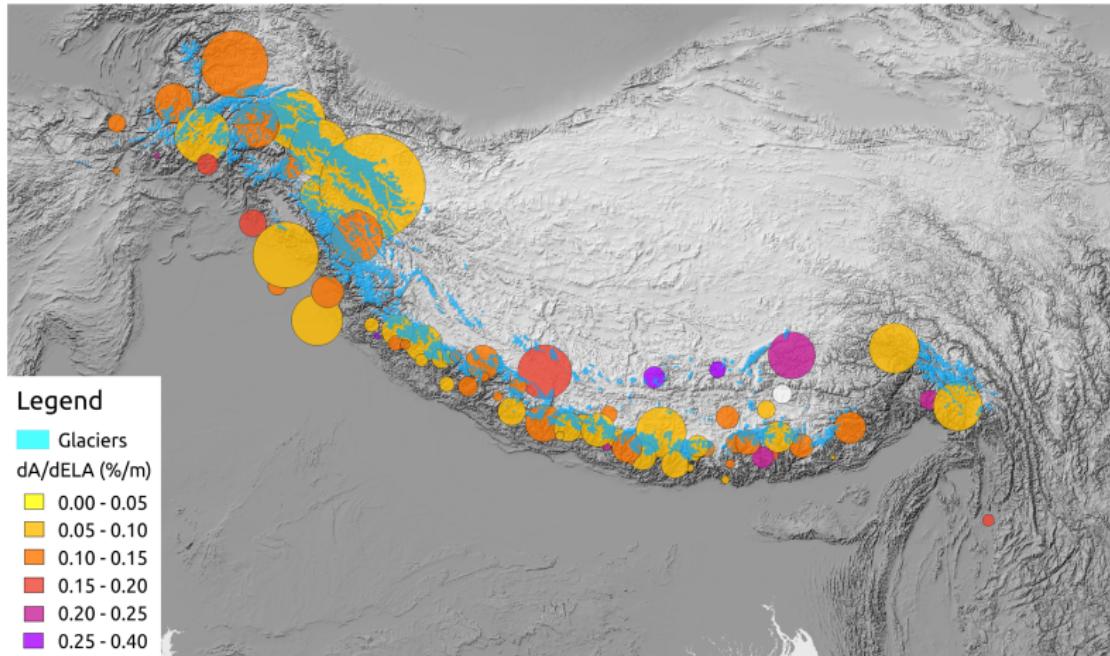








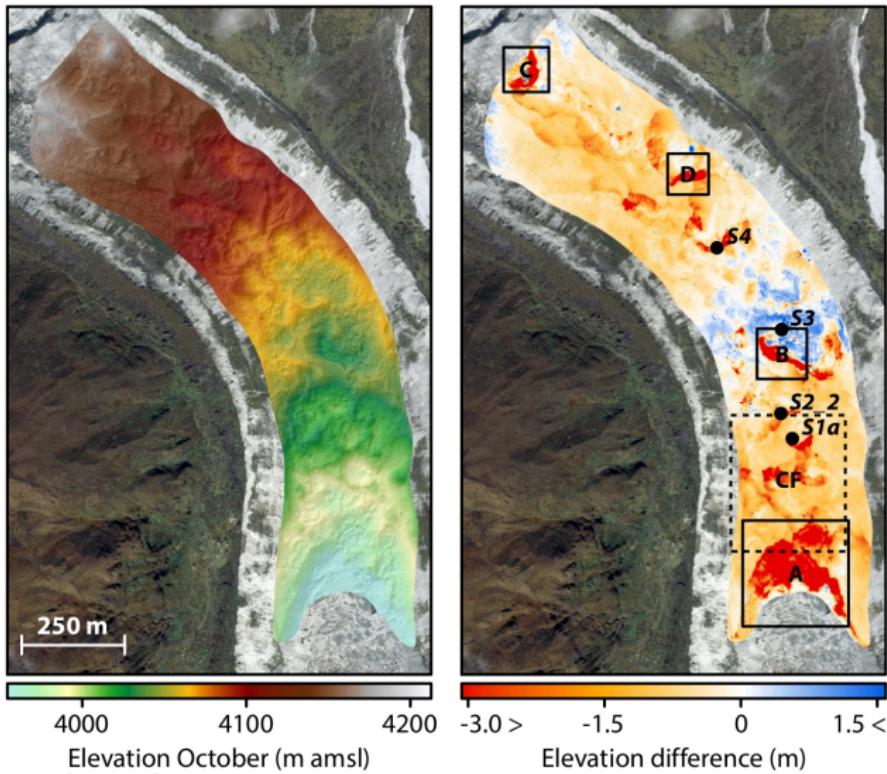




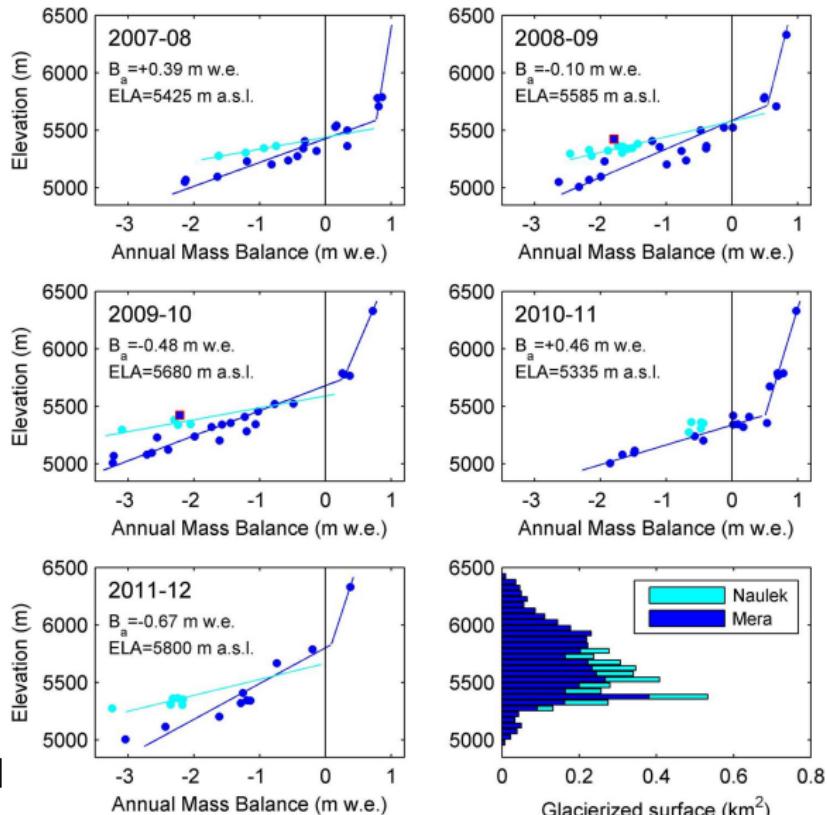


credit: N. Wanders

Unmanned Aerial Vehicles

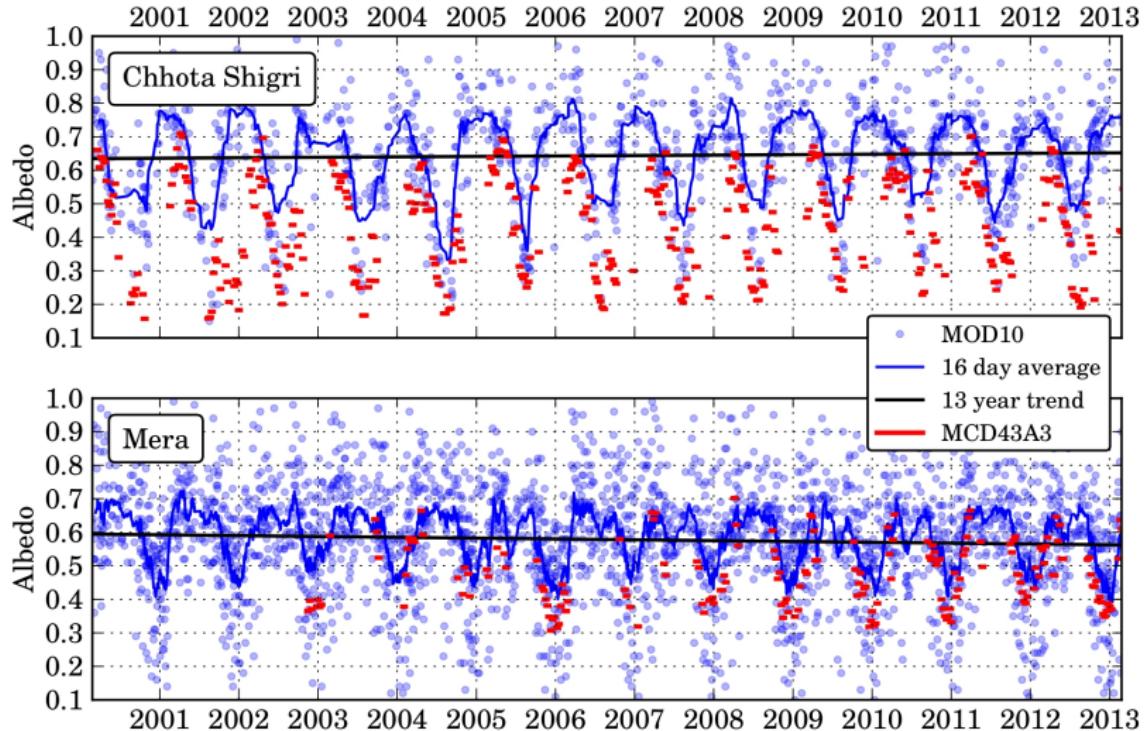


Glacier Mass Balance



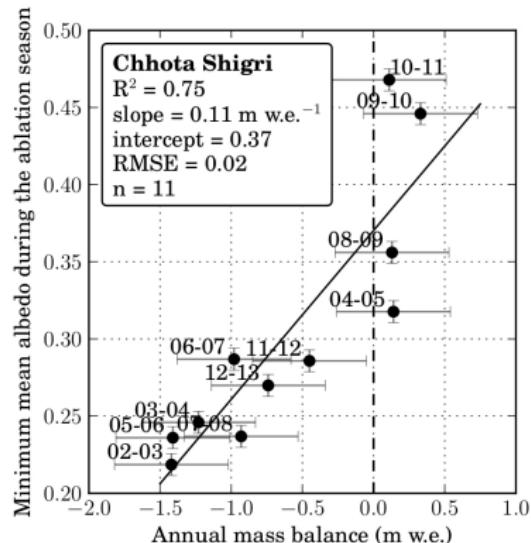
Wagnon et al. [2013]

Glacier Mass Balance

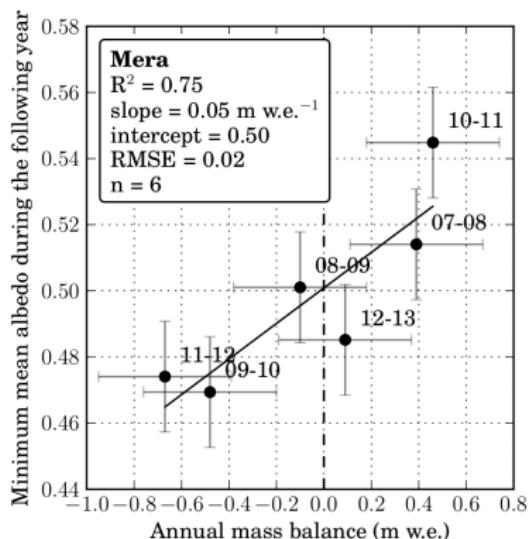


Brun et al. [2014], (in review)

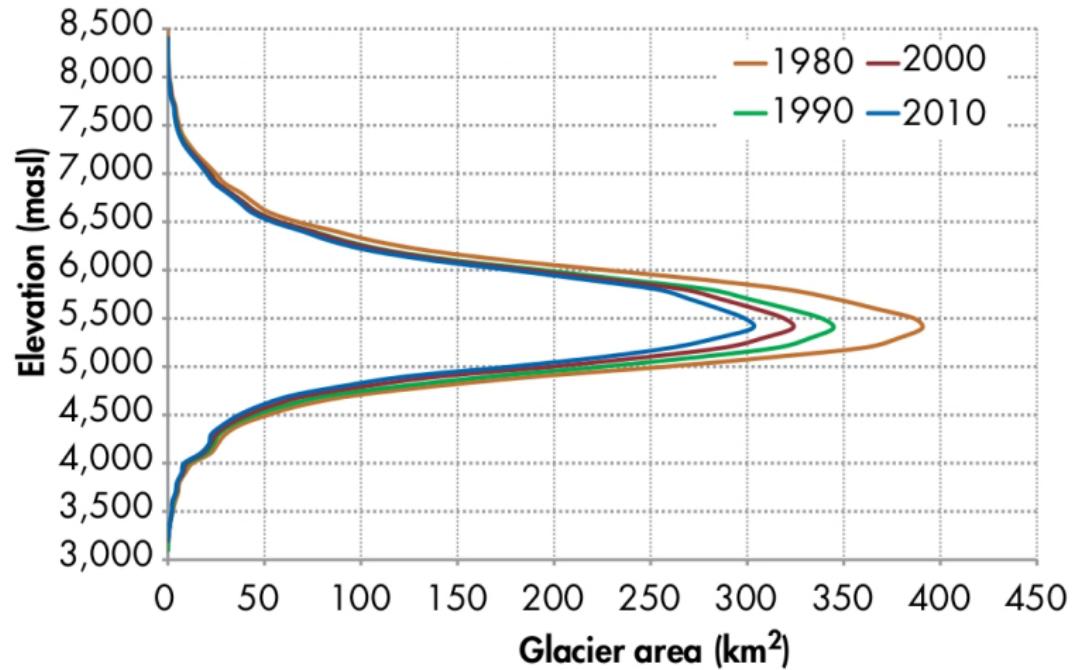
Glacier Mass Balance



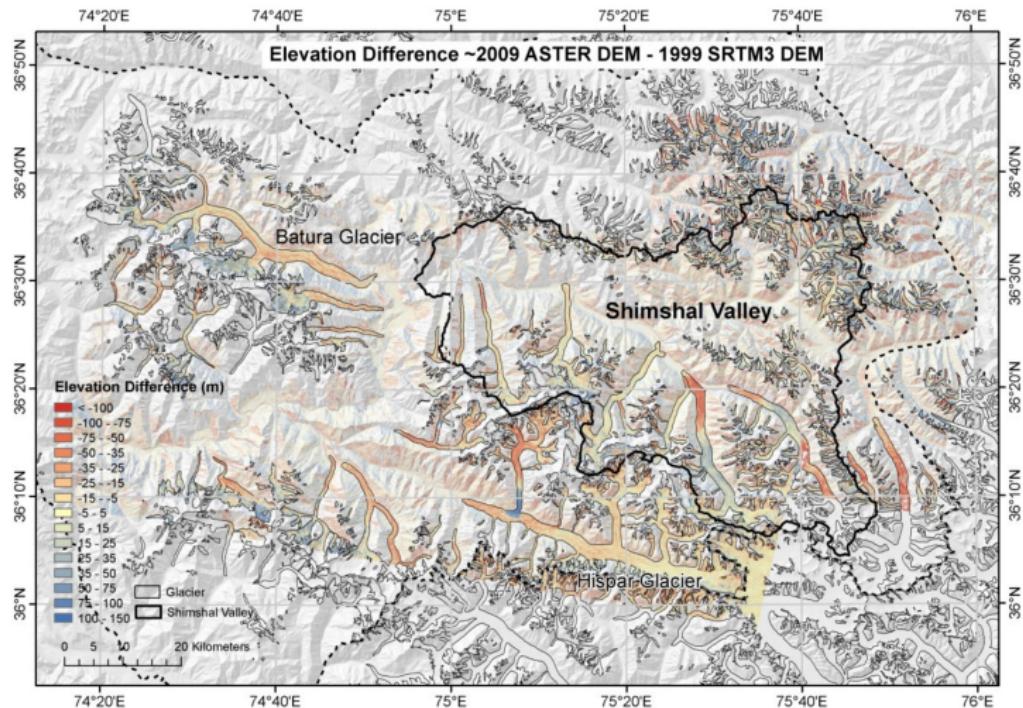
(a)



(b)

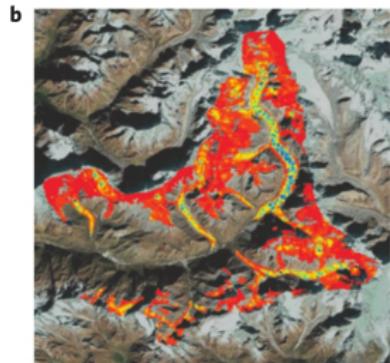


Glacier Change

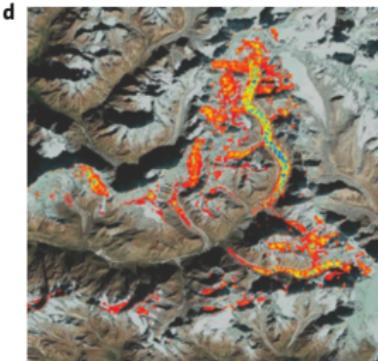


Glacier Change

2008



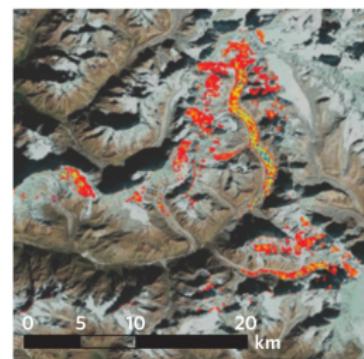
2100 RCP4.5



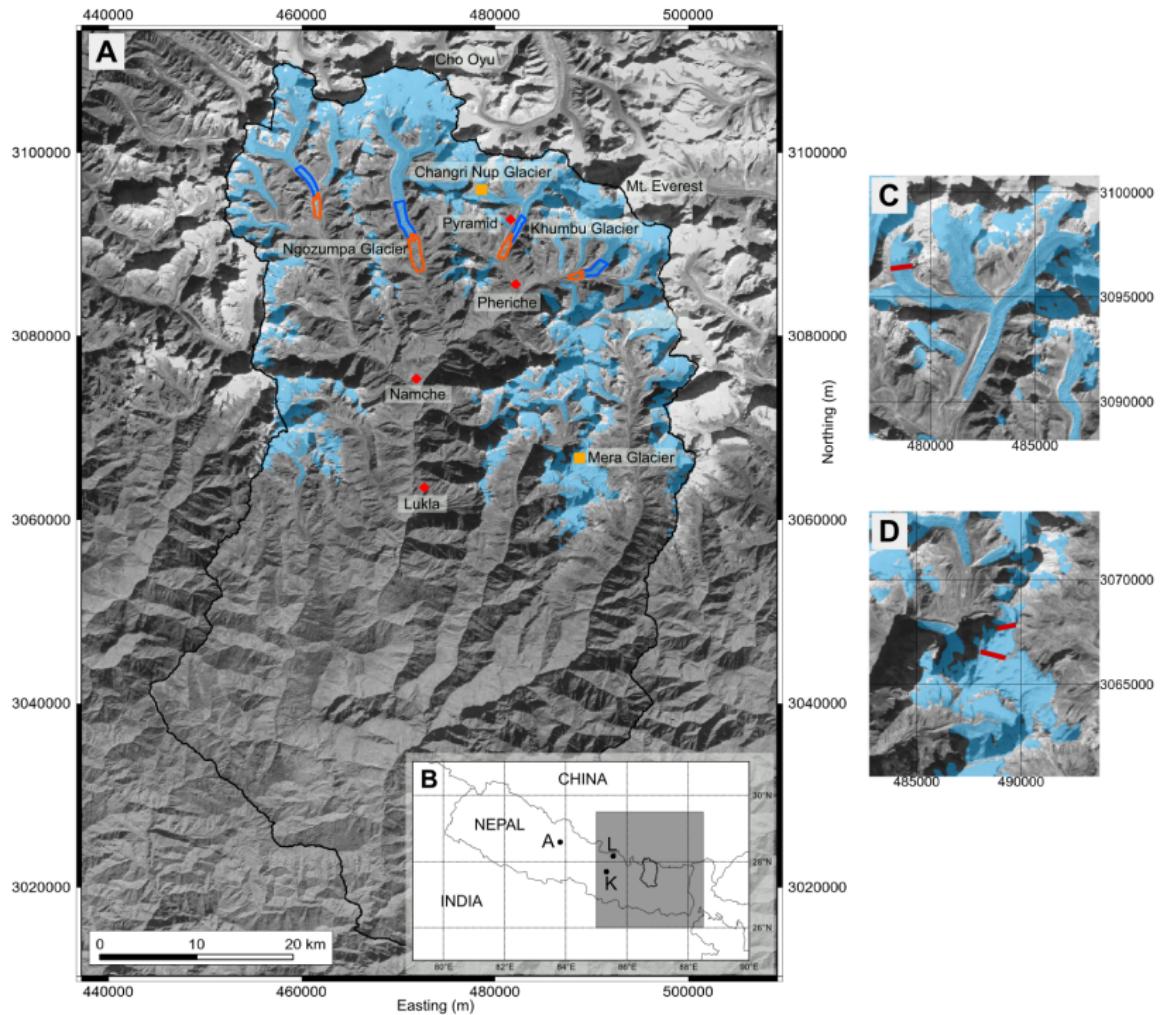
Ice thickness (m)

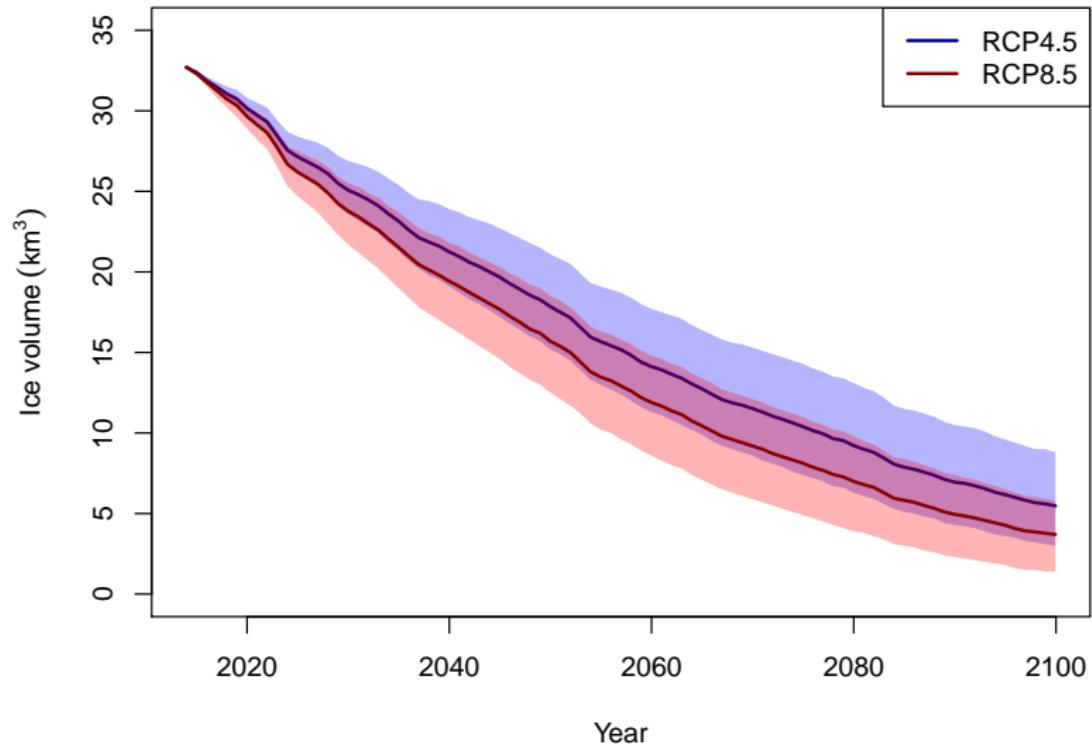
- < 20
- 21-40
- 41-60
- 61-80
- 81-100
- 101-120
- 121-140
- 141-160
- 161-180
- 181-200
- 201-250
- 251-300
- 301-350
- 351-400
- 401-600

2100 RCP8.5



Immerzeel et al. [2013]





- ▶ UAV surveys at Langtang and Changri Nup
- ▶ High altitude precipitation studies
- ▶ Snow monitoring (NVE)
- ▶ Debris-covered glacier melt processes
- ▶ Permafrost surveys [Schmid et al., 2014]
- ▶ Geodetic mass balance studies
- ▶ Downscaling
- ▶ Glacier and hydrologic change

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Thank you!

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