

Application of Satellite Based Knowledge Products for Community Adaptation

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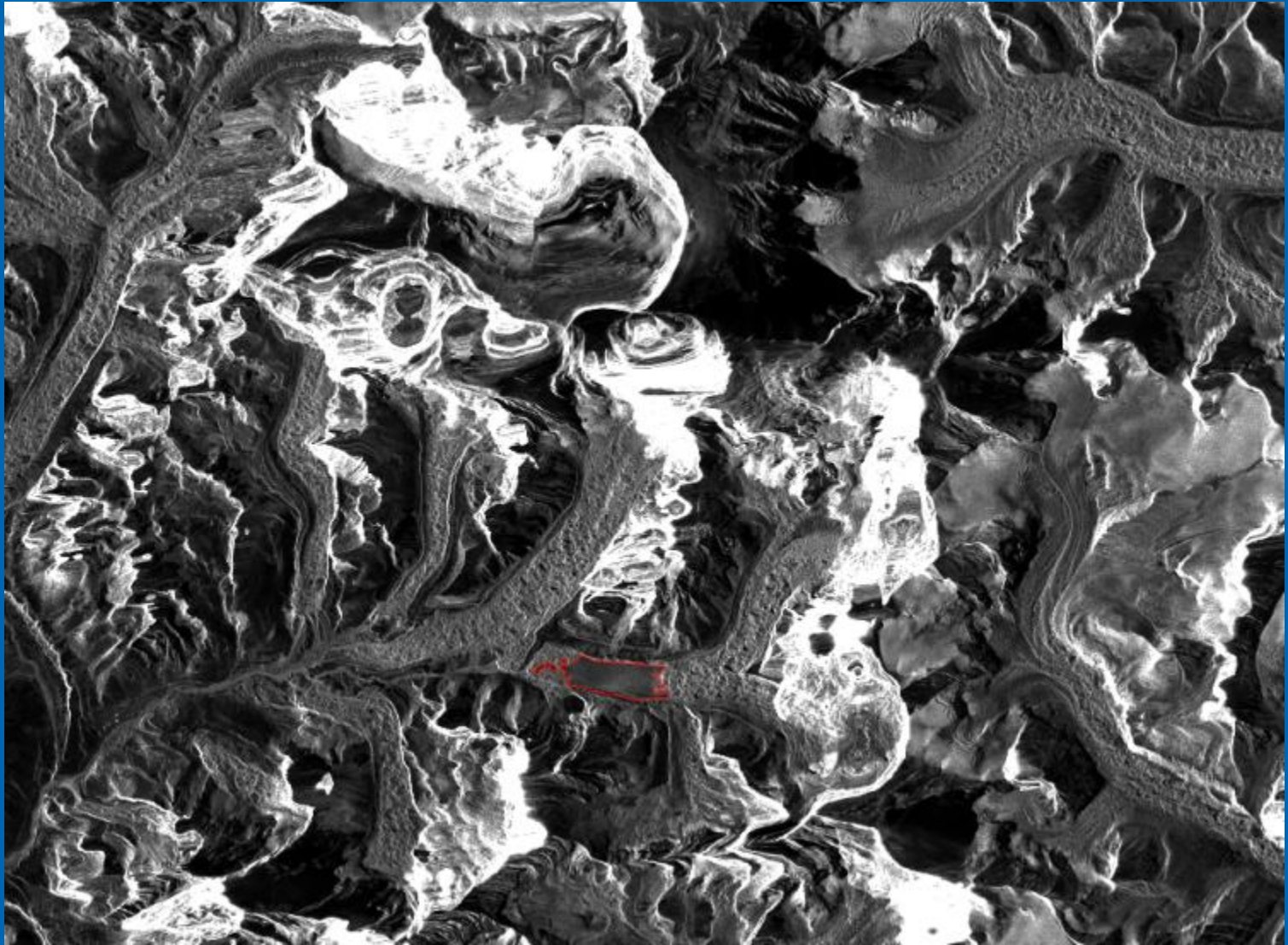
International Centre for Integrated Mountain Development

Kathmandu, Nepal

Dynamics of Cryosphere: Snow and Glaciers in the HKH region

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- Rapid melting of glacier
- Loss of snow cover
- Increased frequency and magnitude of natural disasters
- Many anecdotal evidences...

- IPCC AR4 – HKH as a data deficit region

- Baseline information for regional level assessment

- Understanding change – linking science to policy

Environment and Regional security?

- Water availability
- Agriculture
- Hydropower
-

New Inventory: Glaciers in the HKH region



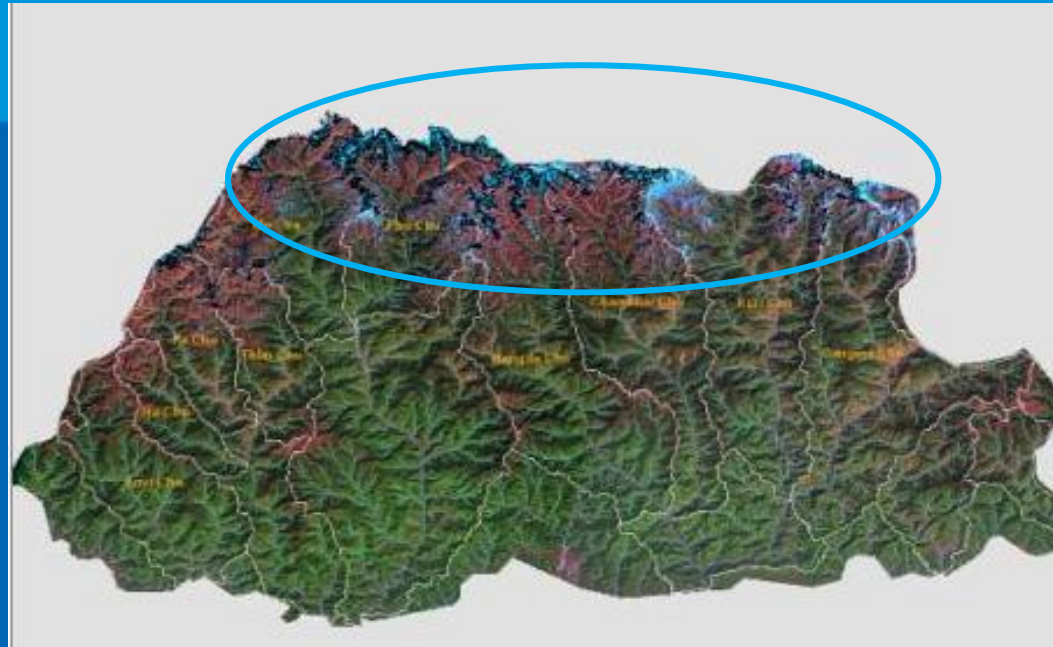
Glacier Area in HKH: about 60,000Km²



Glacier Cover in HKH: 1.4%

Basins	Number	Area (km ²)
Amu Darya	3,277	2,566
Indus	18,495	21,192
Ganga	7,963	9,011.53
Brahmaputra	11,497	14,019
Irrawaddy	133	35
Salween	2,113	1,351
Mekong	482	234
Yangtze	1,661	1,561
Yellow	189	137
Tarim	1,091	2,310
Interior	7,351	7,535
Total	54,252	60,054

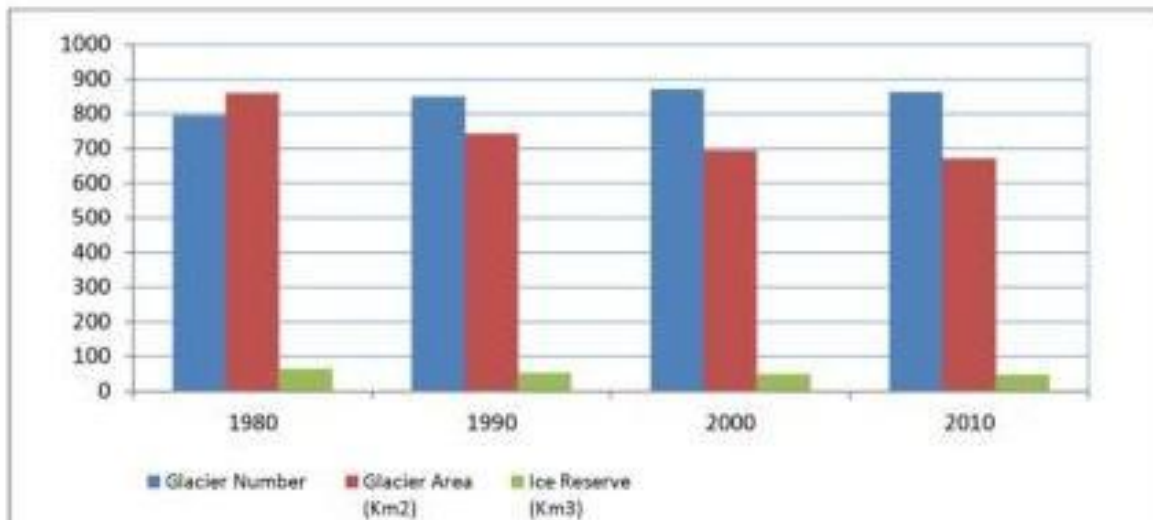
Glaciers change assessment in Bhutan Himalaya



- Glacier area decreased by approximately 20 % over last 30 years

- Distinct differentiation in clean and debris cover glaciers

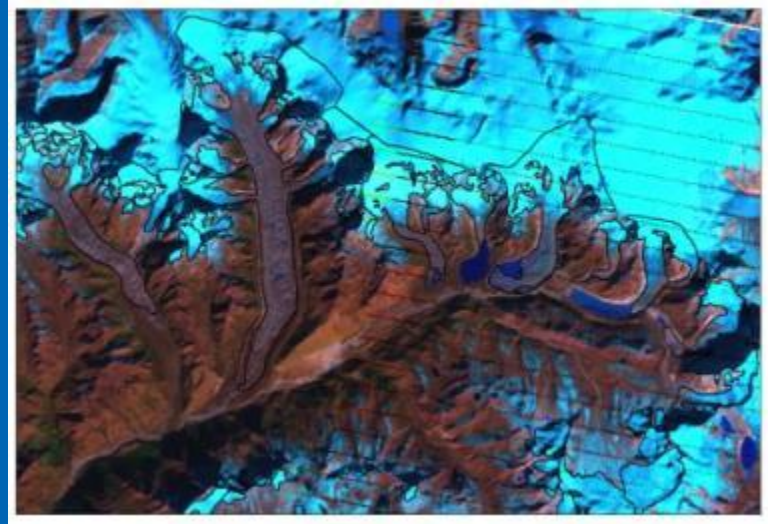
- Field based measurements



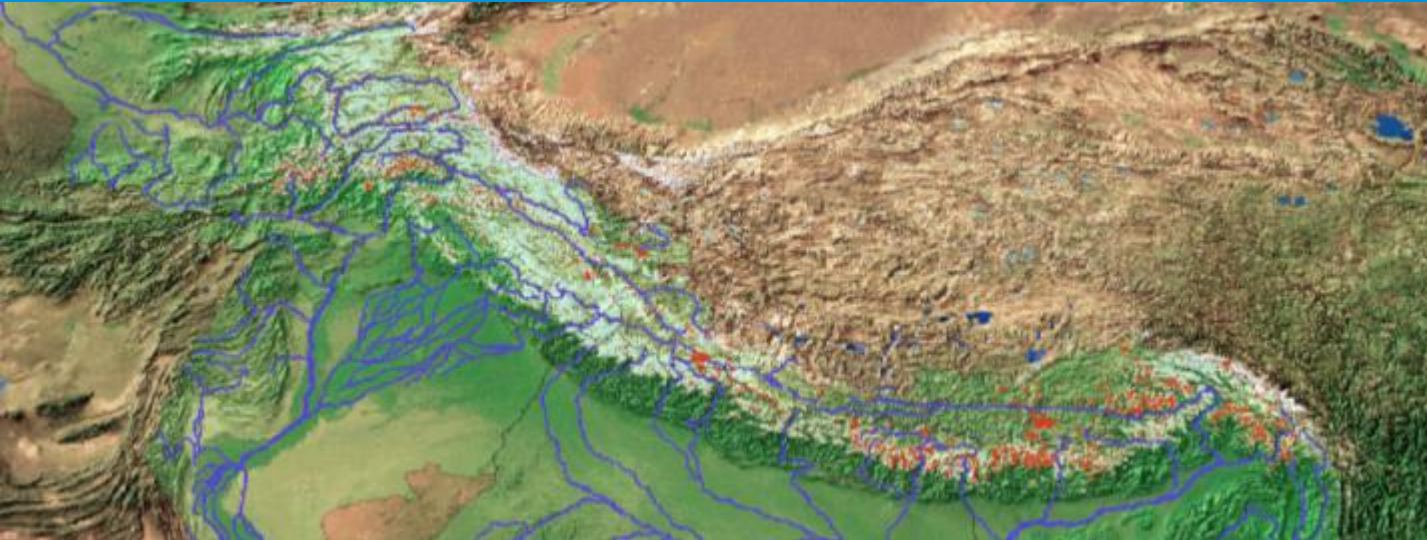
Early warning and mitigating GLOF

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Glacial lake inventory and its dynamics

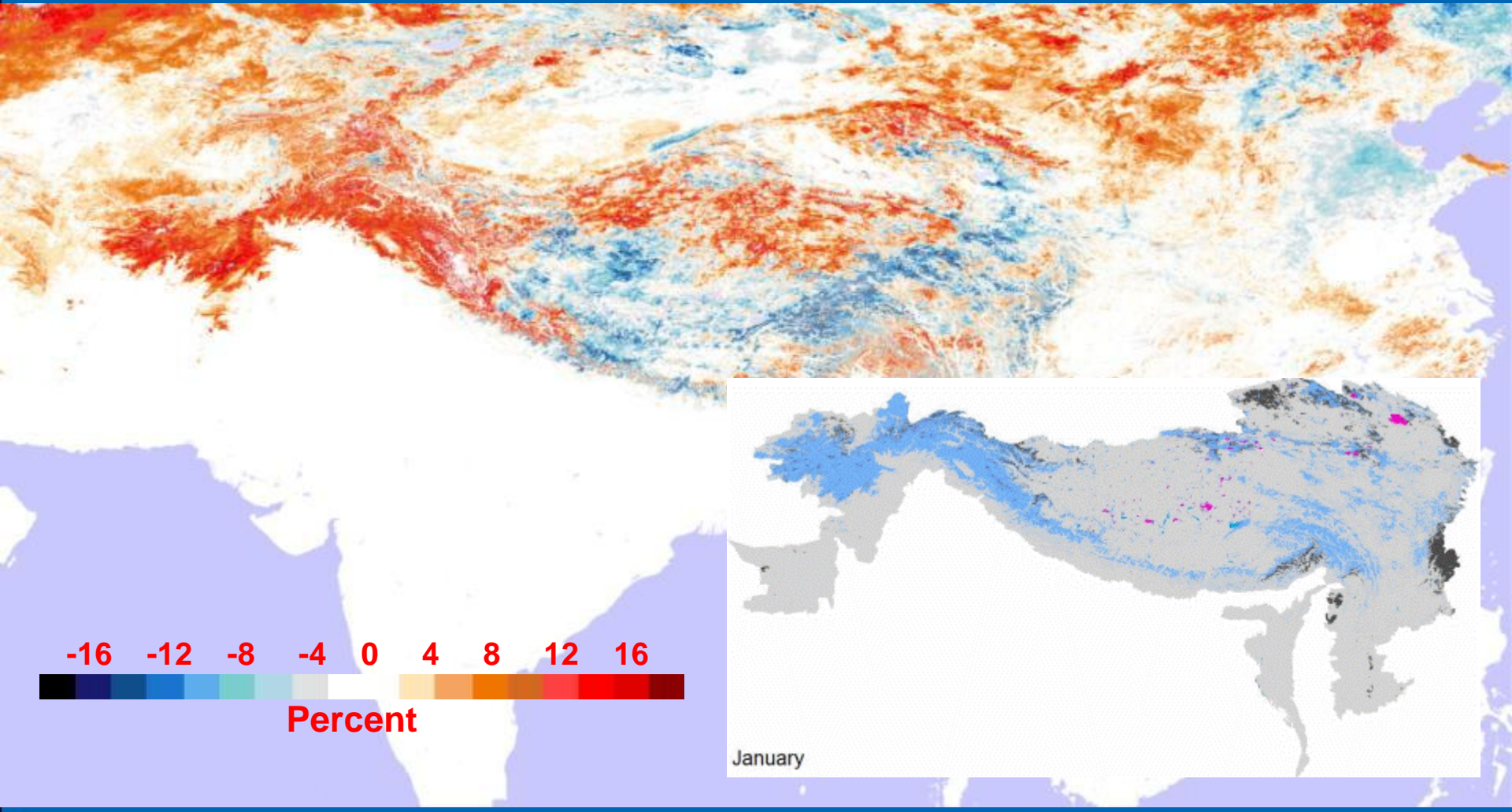


- Rapid growth of glacial lakes
- Potential dangerous glacial lakes and associated GLOF hazards
- Monitoring and early warning system

Basin Name	Basin Code	Lake Number and Percent		Lake Area (sq km) and percent	
		No	%	Area	%
Amu Darya	Am	1521	7.4	129.35	3
Brahmaputra	Br	10097	49.3	2367.48	54.8
Ganges	Ga	3840	18.7	598.05	13.8
Indus	In	4889	23.9	1217.64	28.2
Irrawaddy	Ir	138	0.7	7.86	0.2
Total		20485	100	4320.39	100

Understanding Change: Snow cover

2000-2010 Decadal Snow Cover Change Map



- Cryosphere Information services - Access to regional databases
- Understanding climate change for adaptation and mitigation measures

Taking the pulse of the Himalayas!

Thank you for your attention!

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Stay Happy 😊!

