ASTER: Advanced Spaceborne Thermal Emission and Reflection Radiometer

USA/Japan 1999

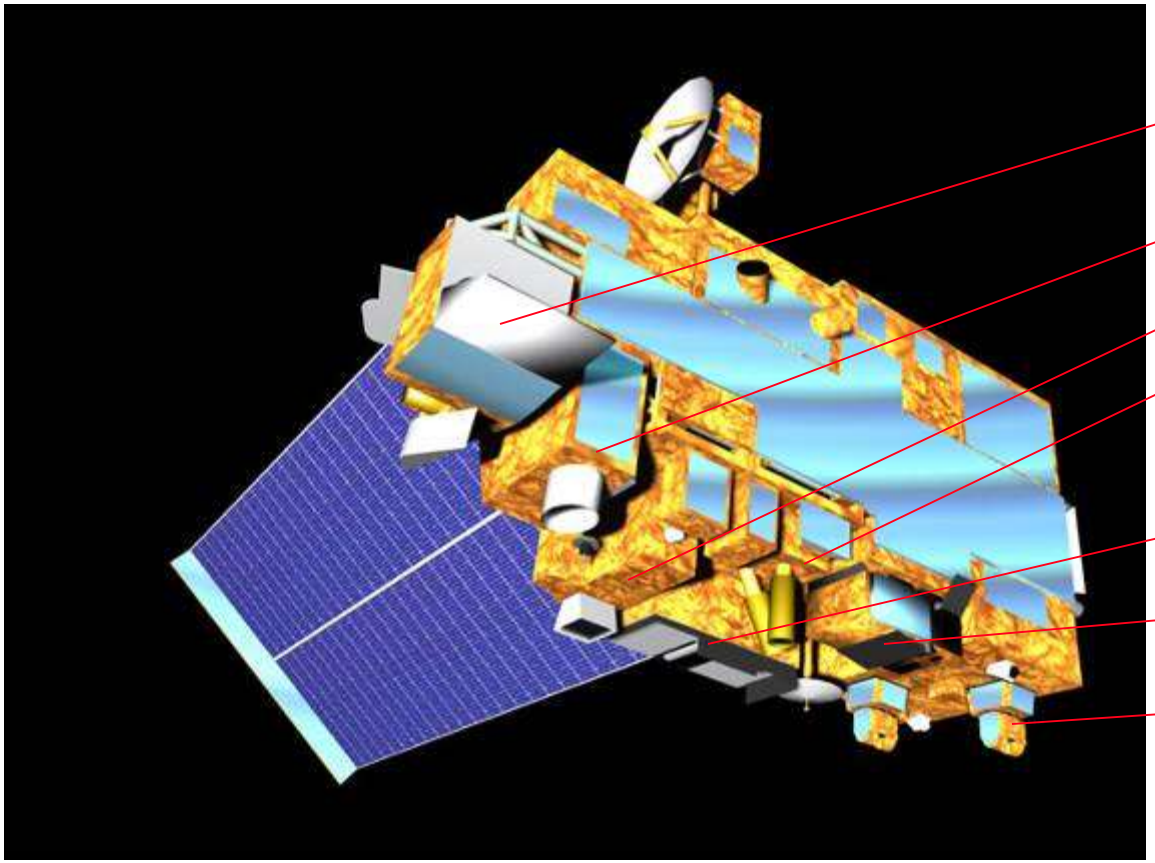
Nuuk, Greenland

https://asterweb.jpl.nasa.gov/gallery.asp

Terra Satellite

Terra is the flagship of NASA's Earth Science Enterprise.

ASTER is the 'zoom lens' of Terra..



TERRA: THE EARTH OBSERVING SYSTEM (EOS) AM-1

http://www.gsfc.nasa.gov/gsfc/service/gallery/fact_sheets/earthsci/terra/terra_eos_am.htm

ASTER **Advanced Spaceborne Thermal Emission and Reflection Radiometer** JAPAN

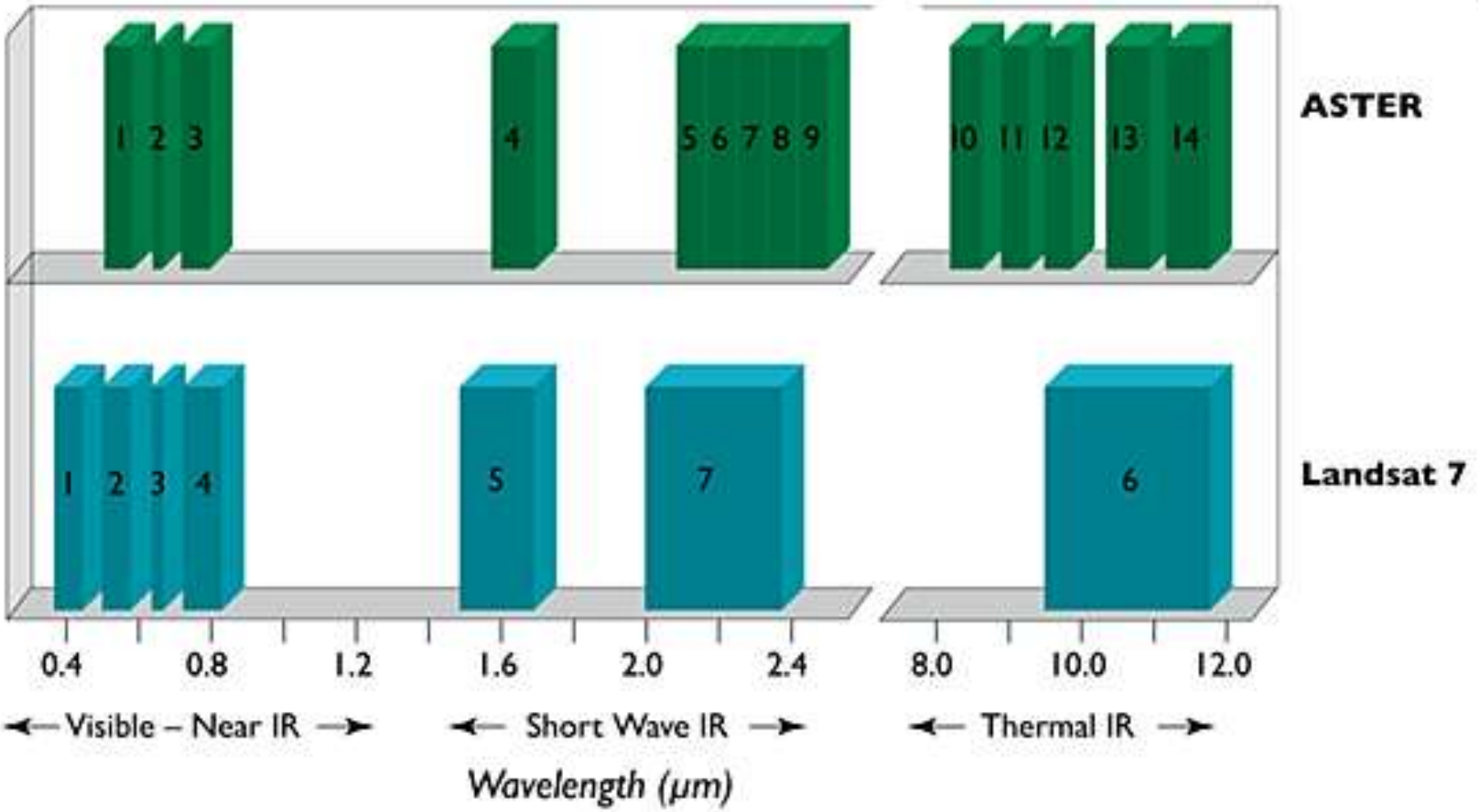
MODIS **Moderate-resolution Imaging Spectroradiometer**

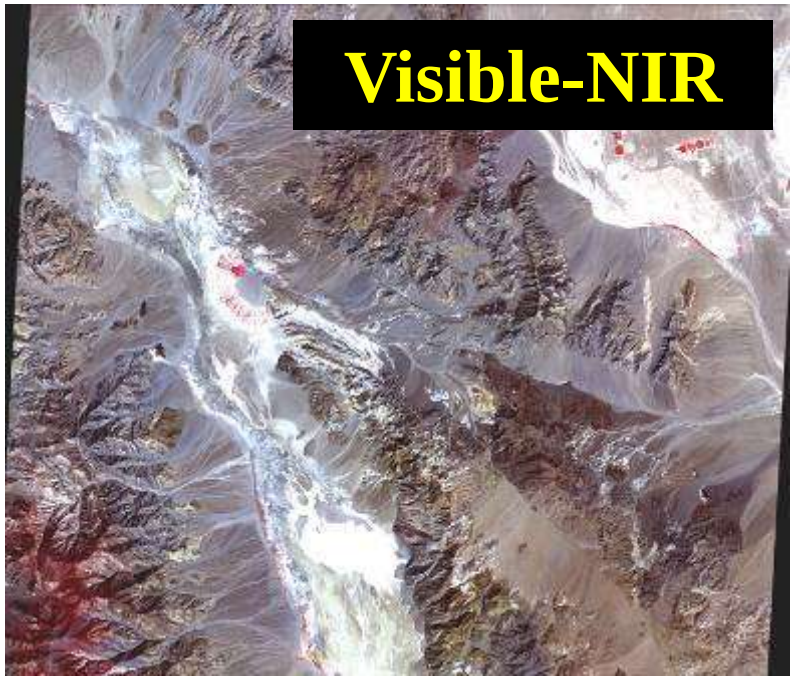
CERES **Clouds and the Earth's Radiant Energy System** (thermal)

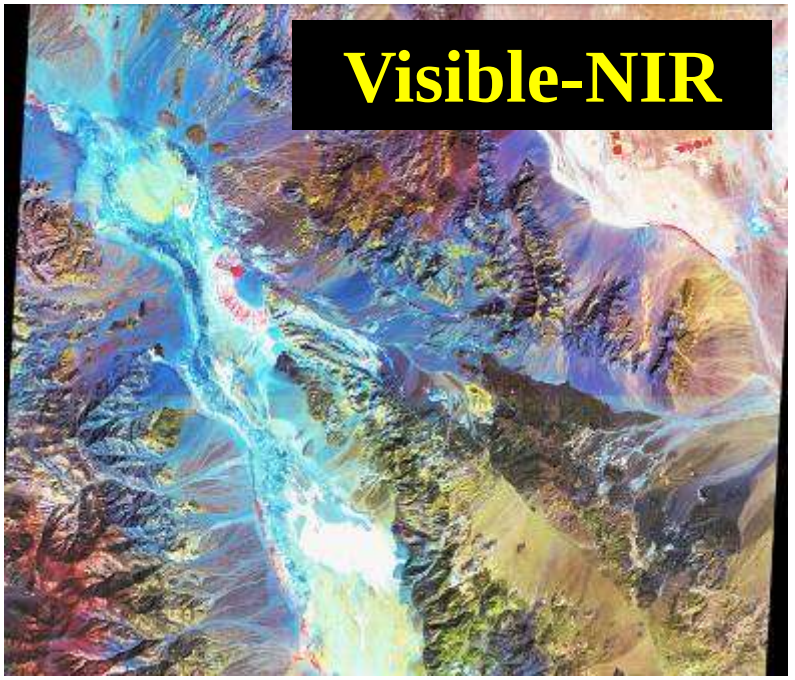
MISR **Multi-angle Imaging Spectro-Radiometer**
VNIR at 26, 46 60, 70 degrees

MOPITT **Measurement of Pollution in the Troposphere** (CO, CH4)
http://www.atmosp.physics.utoronto.ca/MOPITT/home.html CANADA

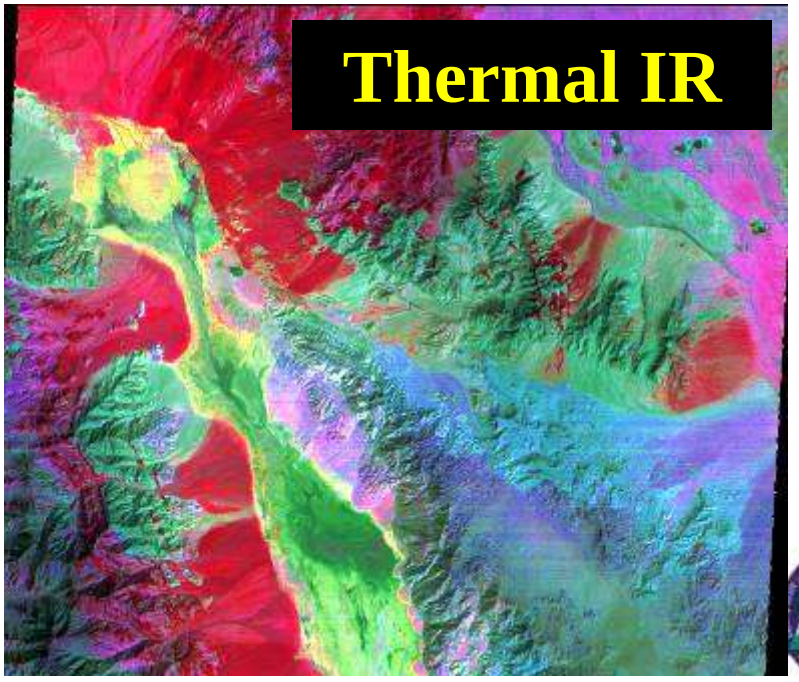
ASTER Bands (versus Landsat TM)




Visible-NIR

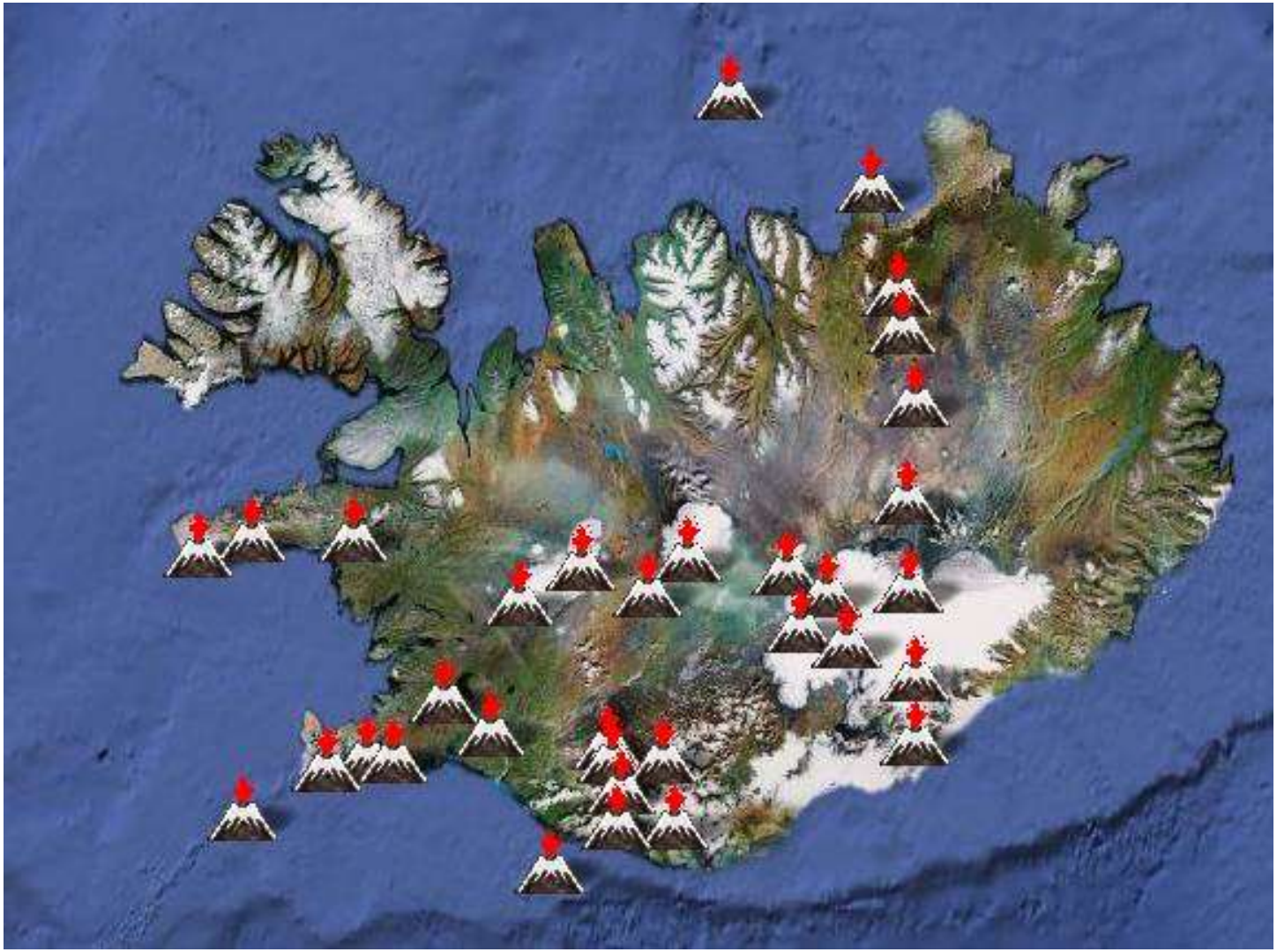

Visible-NIR


Short Wave IR


Thermal IR

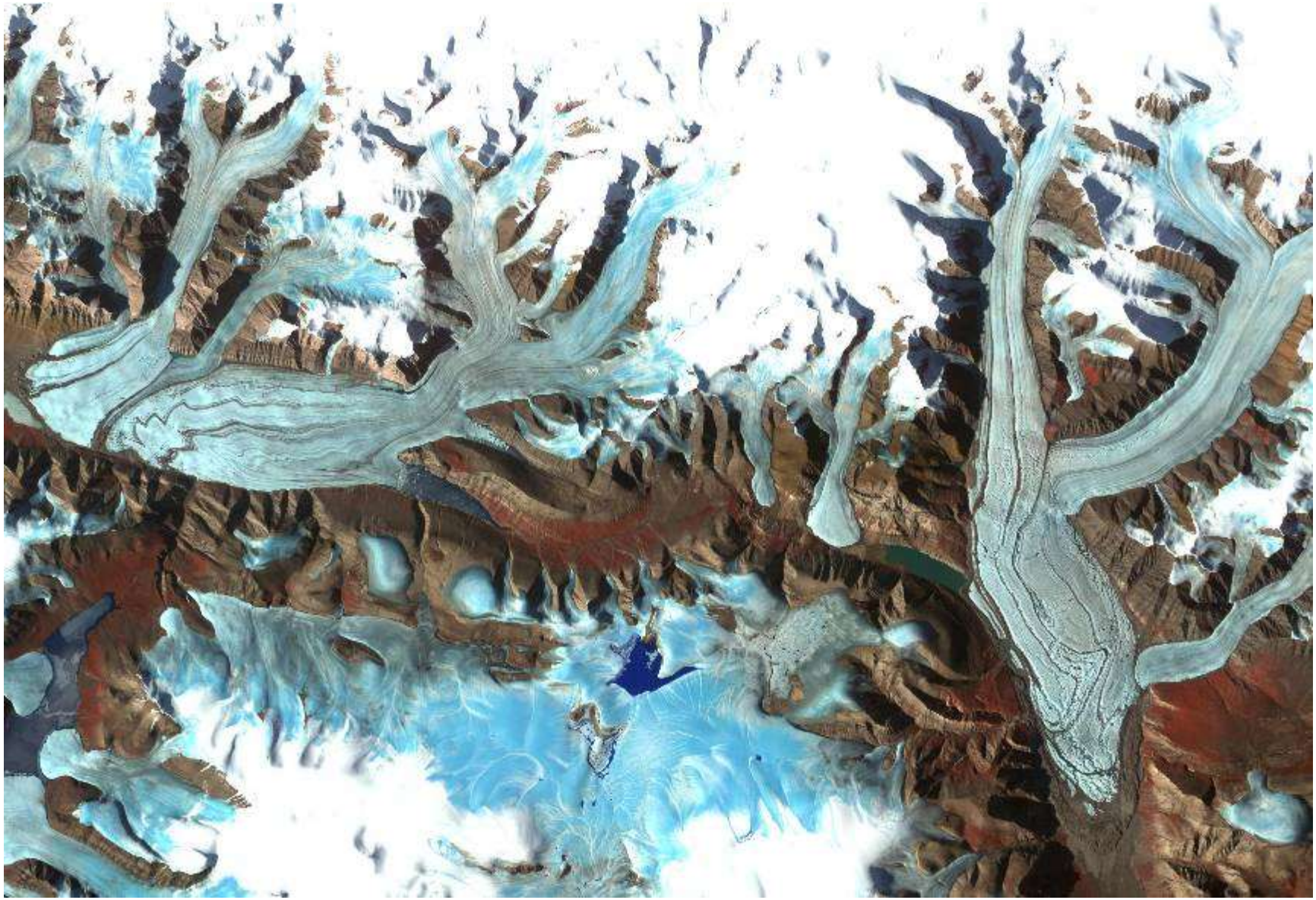
ASTER Volcano Archive

http://ava.jpl.nasa.gov/ava.asp
http://www.volcano.si.edu/gvp/volcano/index.htm



Chapman Glacier, Canada

http://asterweb.jpl.nasa.gov/gallery-detail.asp?name=Chapman



Monitoring changes in glaciers and glacier lakes

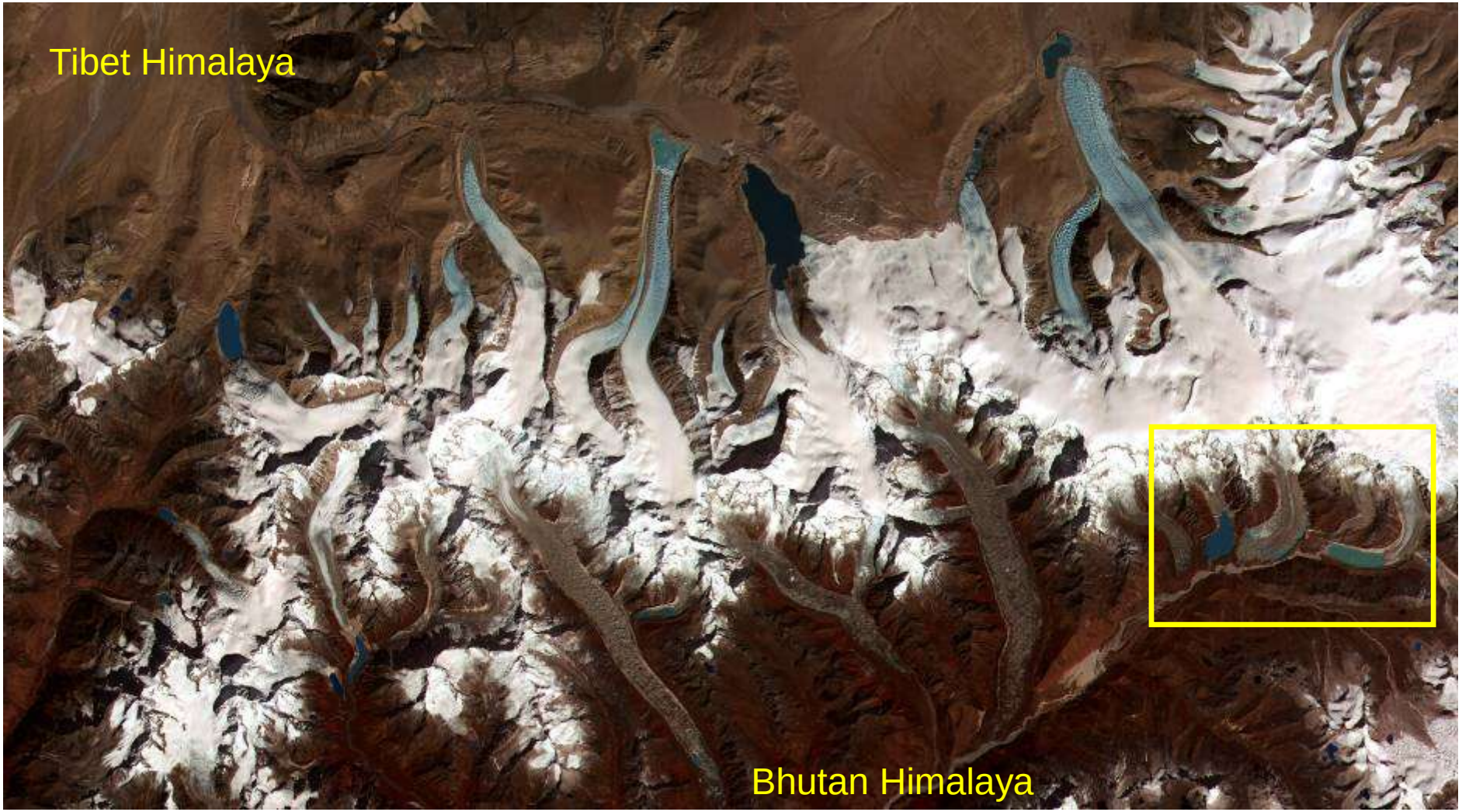
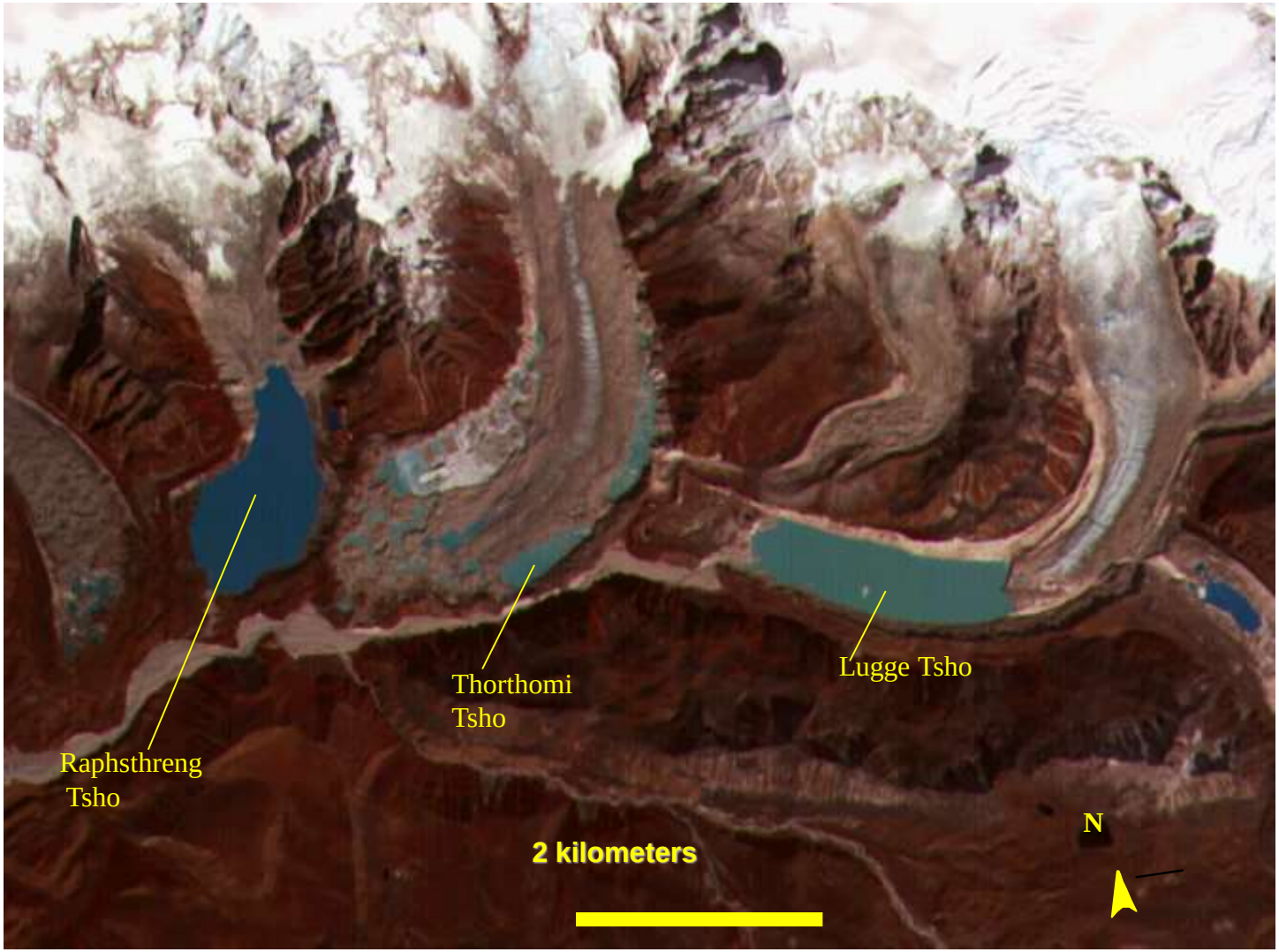


Image is a portion of an uncalibrated ASTER Level 1A VNIR false-color image (321RGB), acquired on November 20, 2001

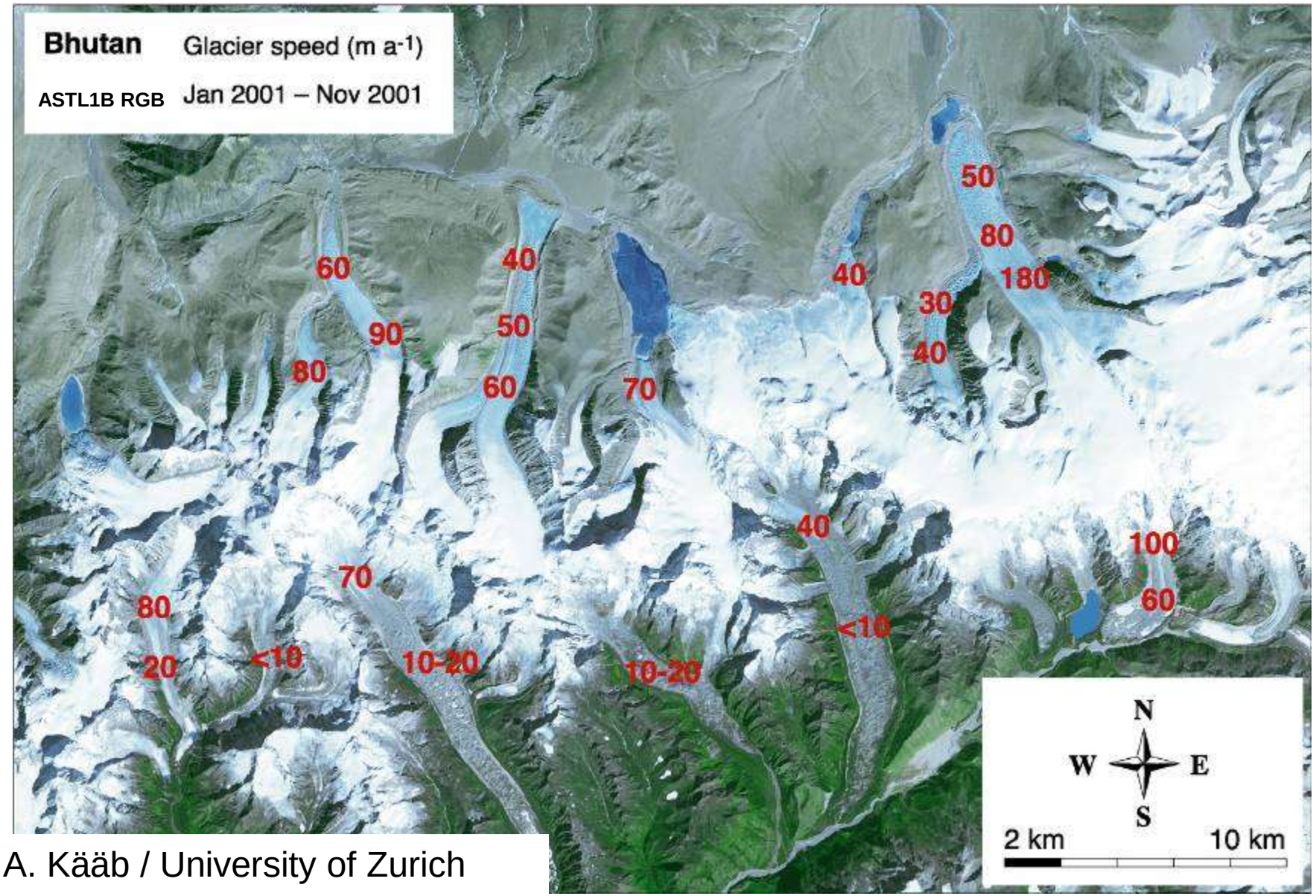
Monitoring Supraglacial and Proglacial Lakes



The stagnating termini of glaciers in the Bhutan Himalaya. Glacial lakes have been rapidly forming on the surfaces of debris-covered glaciers worldwide during the last few decades.

Image is a portion of an uncalibrated ASTER Level 1A VNIR false-color image (321RGB), acquired on November 20, 2001

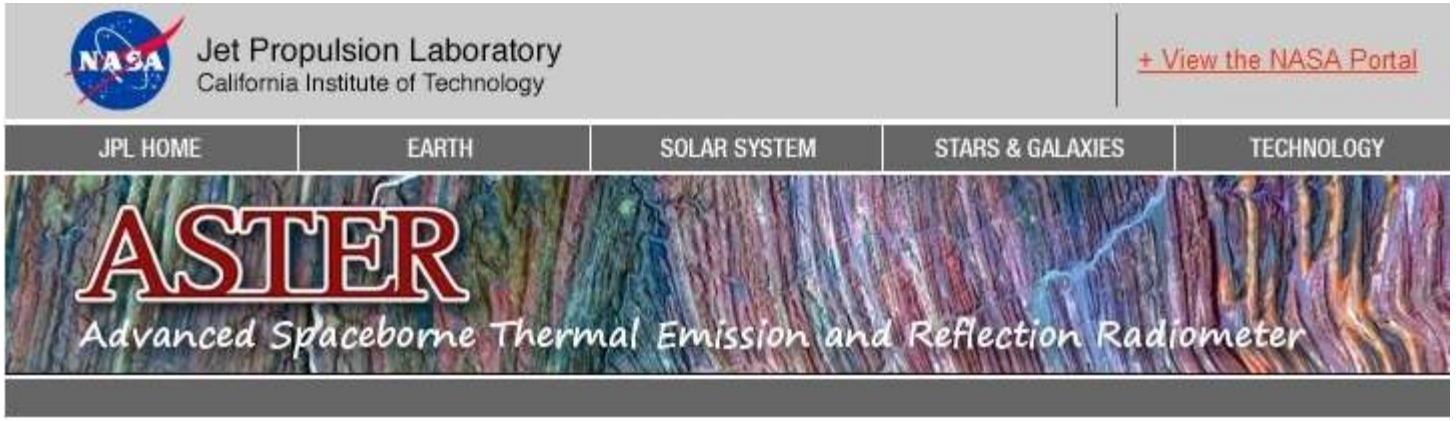
Himalaya, north-south asymmetry in flow speed found by autocorrelating two ASTER images



A. Kääb / University of Zurich

In April 2000, the Terra spacecraft was turned upside down and pointed at the Moon. This ASTER image was acquired at that time, showing band 3 visible in black and white.

Nooooo!! – ASTER SWIR bands fail 2008; end of mission 2023



ASTER User Advisory

Change in Status Alert - January 12, 2009

ASTER SWIR detectors are no longer functioning due to anomalously high SWIR detector temperatures. ASTER SWIR data acquired since April 2008 are not useable, and show saturation of values and severe striping. All attempts to bring the SWIR bands back to life have failed, and no further action is envisioned. VNIR and TIR data continue to show excellent quality, meeting all mission requirements and specifications.

January 29, 2021

Upcoming Terra Constellation Exit

Terra has completed all mission maneuvers related to maintaining a 10:30 mean local time (MLT) equator crossing and 705 km orbit altitude. Terra will begin drifting to an earlier MLT around April 2021. In October 2022, Terra will have a 10:15 AM MLT crossing, and continue to drift to earlier MLT. At this time, we will also lower our orbit altitude to 694 km. https://asterweb.jpl.nasa.gov

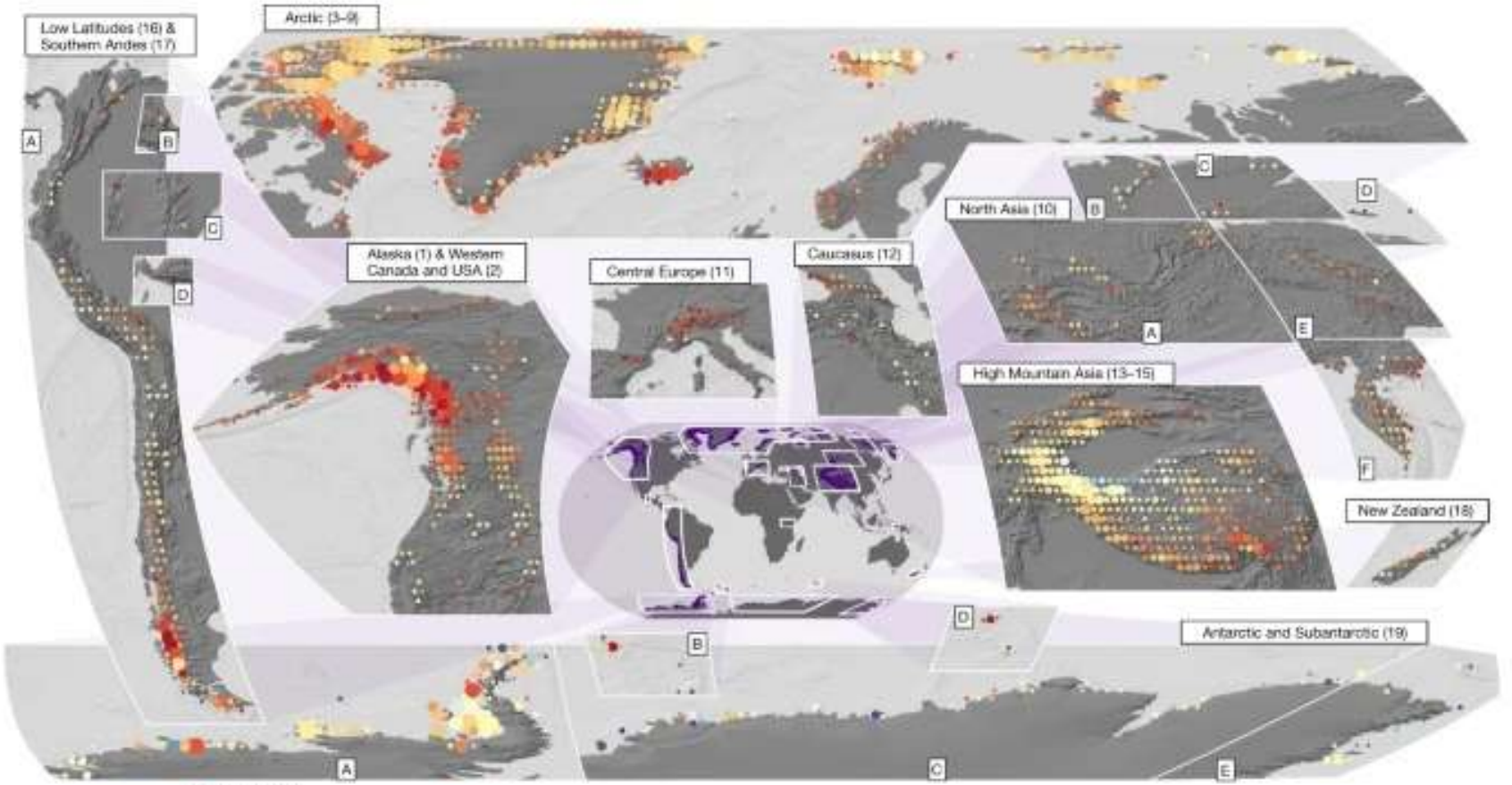
TERRA (EOS AM-1) The EOS flagship

data since Feb 24, 2000 (launch 18 Dec 1999)
705 km, 10.30am descending

41586_2021_3436_Fig2_HTML.webp

Accelerated global glacier mass loss in the early twenty-first century

Fig. 2: Spatial distribution of glacier elevation change between 2000 and 2019.



https://www.nature.com/articles/s41586-021-03436-z

ASTER image and DEM : Svalbard, Norway (80N) (15 metre resolution)

Longyearbyen campus northernmost - UNIS

UNIS courses-upper year/ graduate students

Satellite data receiving stations

ASTER

Yoho Nat. Park