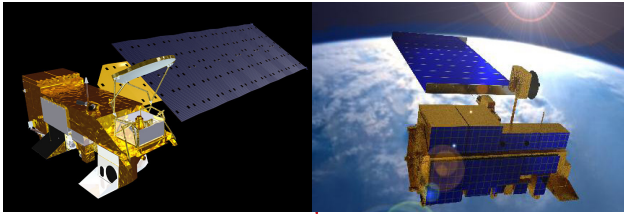
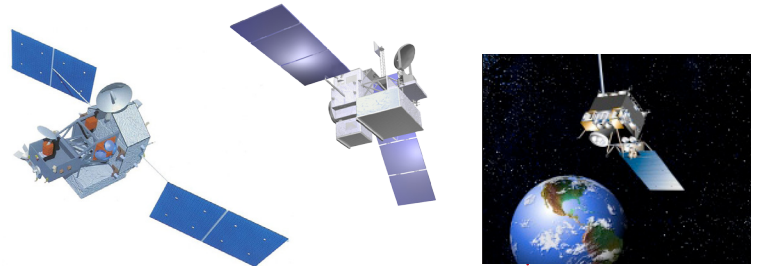


COMPOUND EYE OF SATELLITES FOR OPERATIONAL WATER MANAGEMENT IN THE ANTHROPOCENE OF SURFACE WATER



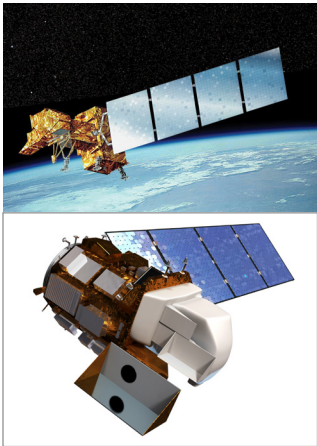
AQUA and TERRA

Visible and Near Infrared sensing at < 1km and sub-daily scales for routine estimates of land cover and width of large rivers.



TRMM, GPM and GOES

Microwave and Infrared sensing of precipitation at < 10km and hourly scales for rainfall-runoff transformation, snow and lateral flow estimation in regulated river systems.

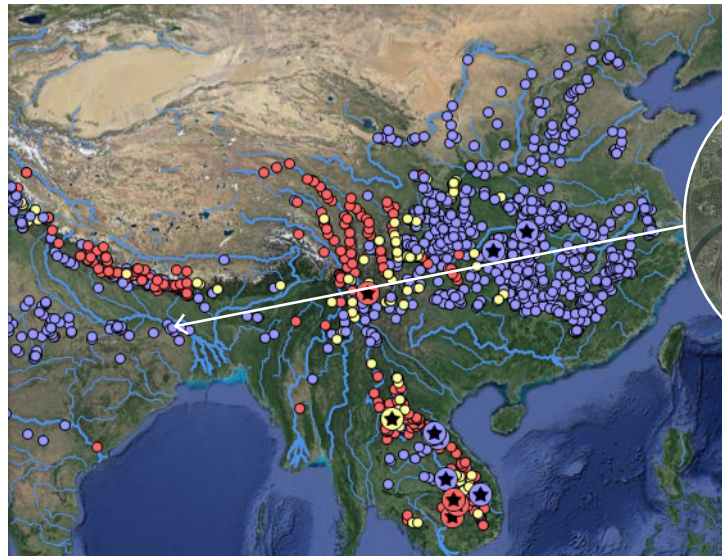


Landsat 7 and Landsat 8

Visible and Near Infrared sensing at < 100 meters and monthly scales for estimation of changing river widths of small rivers.

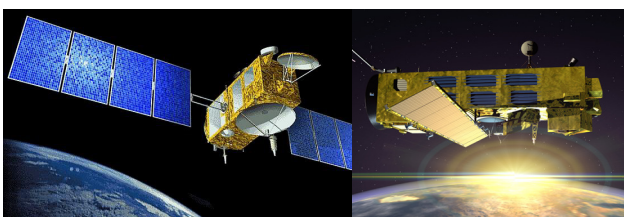
Joint use of height and width for more frequent estimate of river regulation

River bathymetry



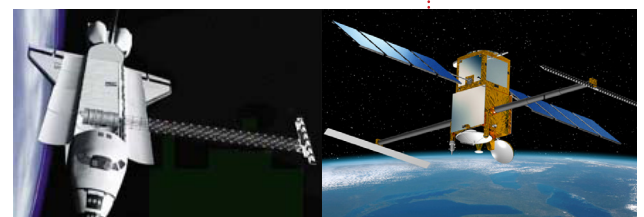
Location of current and planned human regulation of surface water in South and Southeast Asia. Such regulation of surface water by rules set by humans make the use of stand-alone physical models increasingly inadequate without the assistance from the compound eye of water-relevant satellites as shown here.

The Farakka barrage on the Ganges that drastically alters water management complexity between nations (India and Bangladesh) during dry and wet seasons.



JASON-2 and Envisat

Microwave nadir altimeter sensing of river levels at weekly timescales for > 300 m wide rivers (JASON-2) and monthly timescales for 150 m wide rivers (AltiKa).



SRTM and SWOT

Microwave sensing of land and water surface at < 100m (weekly for SWOT) for routine estimate of river slopes, reservoir storage change, and floodplain.