

Products from TerraNor



Orthorectifying, mosaick, DTM, DSM



Lidar analysis, DTM/DEM, DSM



Classification, analysis

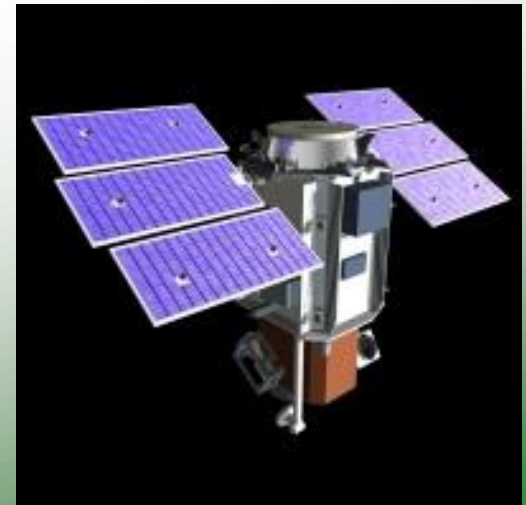


Satellite data



GIS was invented by Canada in 1960
Remote sensing – Corona 1959, military

The rest is history you know



Falk project for Norwegian Environmental Agency - MD



What can you find here?

UiB

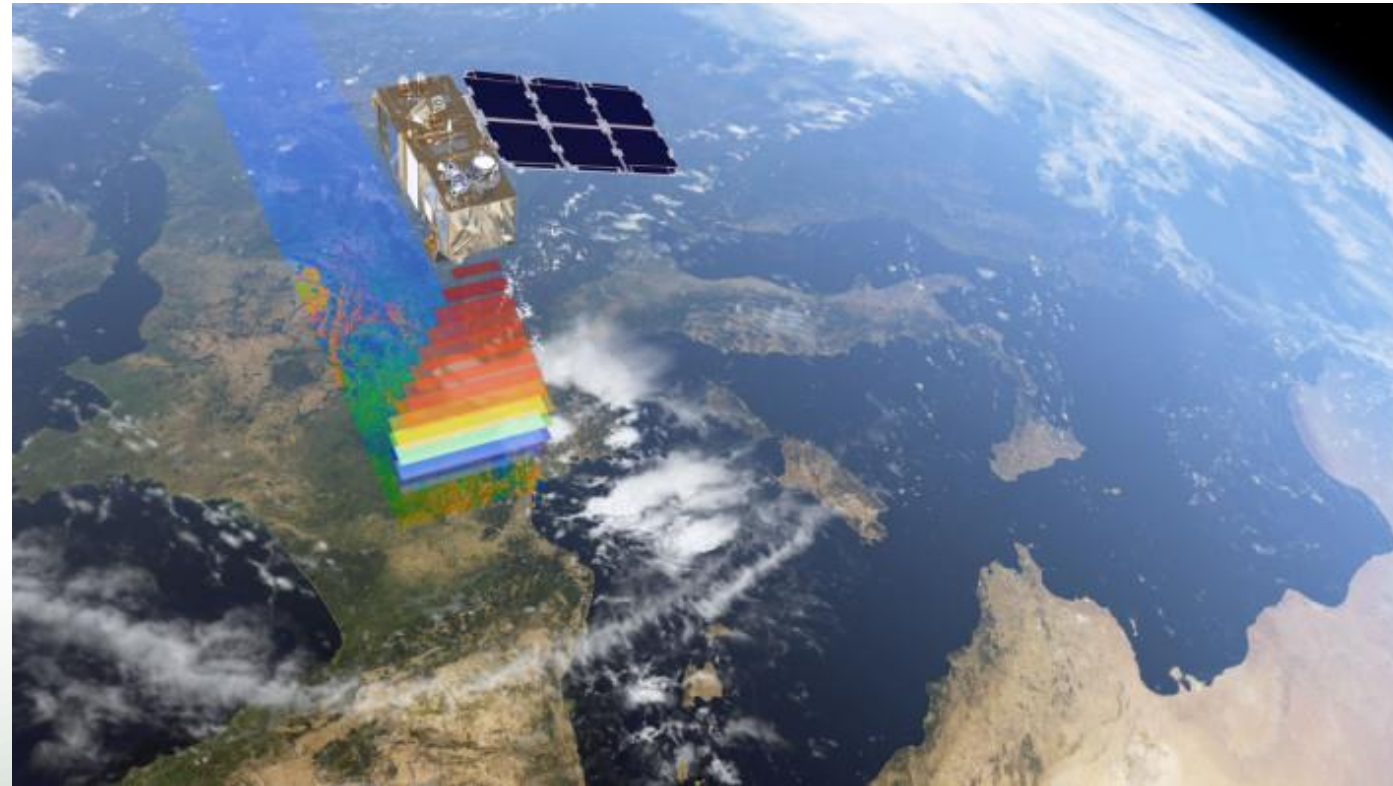
TerraNor

PCI Geomatics

Trimble eCognition team

Copernicus is more than just Sentinel 2

Dr. Solveig Havstad Winsvold, Norwegian Space Agency
(Norsk Romsenter)



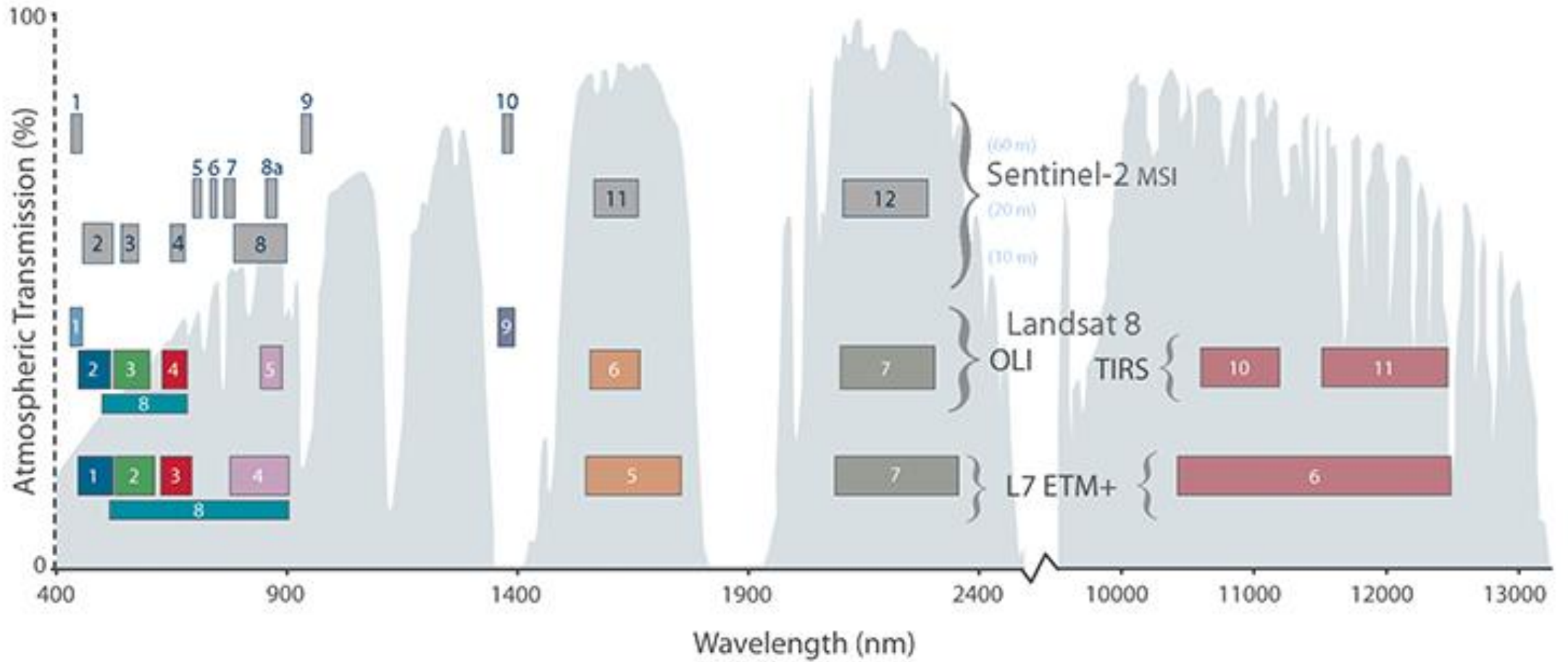
Msc. Torgeir Ferdinand Klingenberg, Norwegian Mapping Agency (Kartverket)



Full mosaic for the whole of Norway from Sentinel 2 data

Landsat 7/8 and Sentinel 2

Comparison of Landsat 7 and 8 bands with Sentinel-2



What bands to use



Spectral bands for the Sentinel-2 sensors^[9]

Sentinel-2 bands	Sentinel-2A		Sentinel-2B		Spatial resolution (m)
	Central wavelength (nm)	Bandwidth (nm)	Central wavelength (nm)	Bandwidth (nm)	
Band 1 – Coastal aerosol	442.7	21	442.2	21	60
Band 2 – Blue	492.4	66	492.1	66	10
Band 3 – Green	559.8	36	559.0	36	10
Band 4 – Red	664.6	31	664.9	31	10
Band 5 – Vegetation red edge	704.1	15	703.8	16	20
Band 6 – Vegetation red edge	740.5	15	739.1	15	20
Band 7 – Vegetation red edge	782.8	20	779.7	20	20
Band 8 – NIR	832.8	106	832.9	106	10
Band 8A – Narrow NIR	864.7	21	864.0	22	20
Band 9 – Water vapour	945.1	20	943.2	21	60
Band 10 – SWIR – Cirrus	1373.5	31	1376.9	30	60
Band 11 – SWIR	1613.7	91	1610.4	94	20
Band 12 – SWIR	2202.4	175	2185.7	185	20

Color Infrared (B8, B4, B3)



Color infrared: 8:NIR, 4:Red, 3:Green Healthy and unhealthy NIR is not chlorophyll

Associate Professor, Dr Gidske Andersen, UiB

- Vegetation and its spectral characteristics
- How does plants see the light?



System oversikt



Ottawa and Toronto



Grua



PCI GXL
eCognition dev/server
(i Bergen)



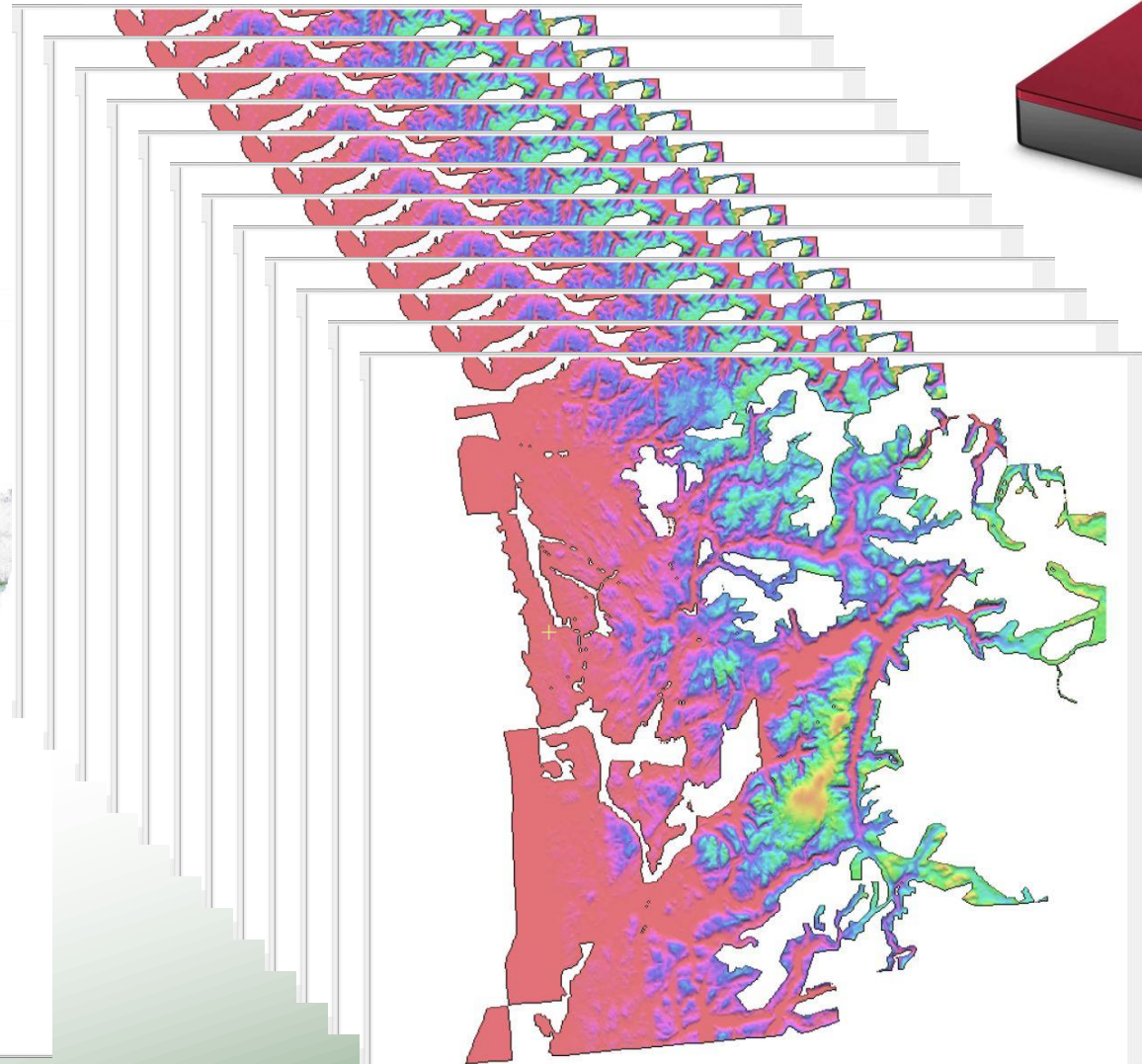
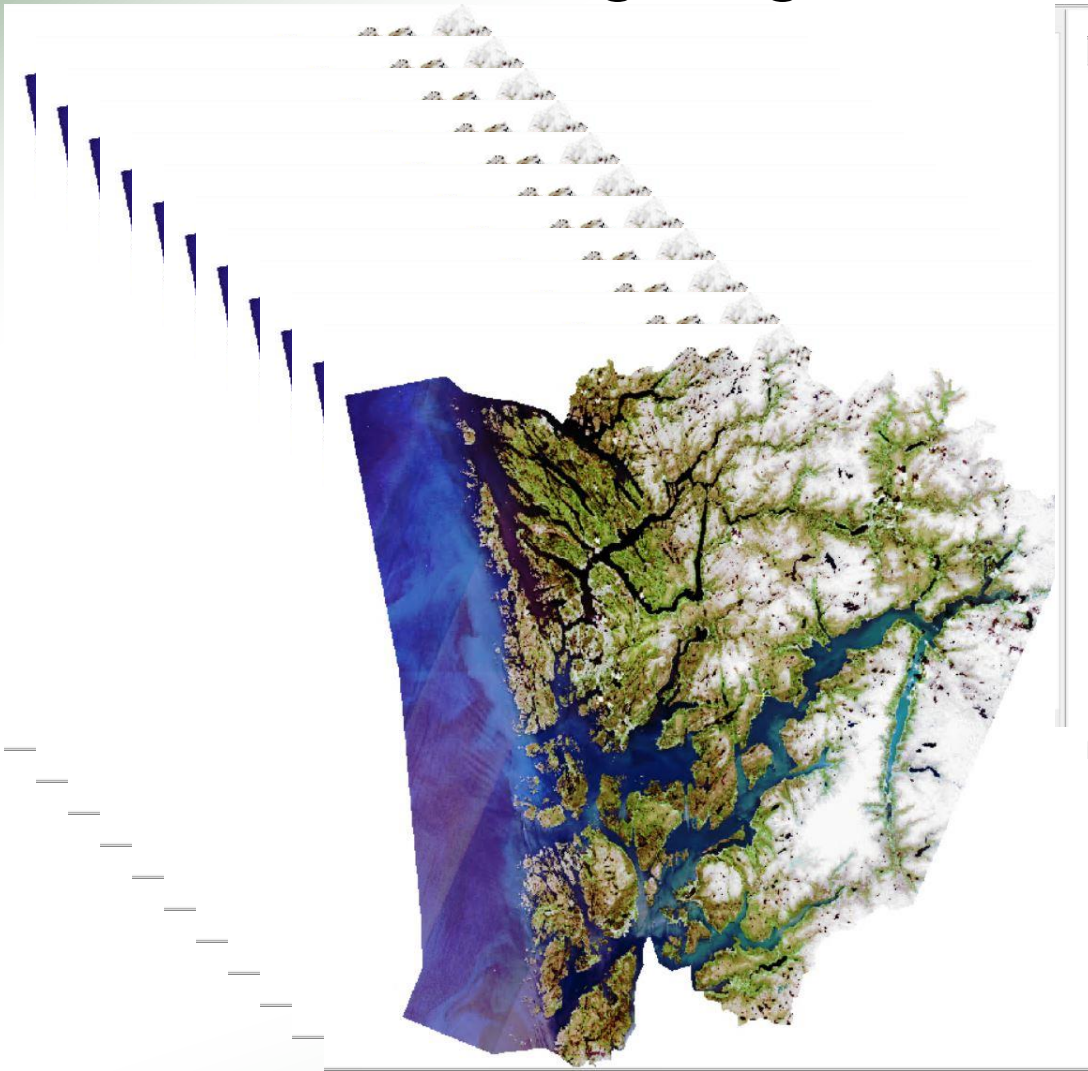
Bergen



Vancouver

Scientist Max Koller

- Processing large amount of Sentinel 2 data



5 TB



Nils Erik Jørgensen about GXL



- Windows 10 Pro 64-bit
- Single 8, 10, 12 or 14 Core Intel Xeon 2.6GHz or better
- 64GB DDR4 RAM (max 128 Gb)
- 256GB Pro SSD for OS
- 1TB SSD for Temp/Scratch data
- 8TB 7200 Enterprise Class HDD (Input/Output data)
- MSI GeForce RTX 2060 SUPER ARMOR OC
 - Skjermkort, PCI-Express 3.0, 8GB GDDR6, Turing



eCognition Deep Learning
(Google Tensorflow)

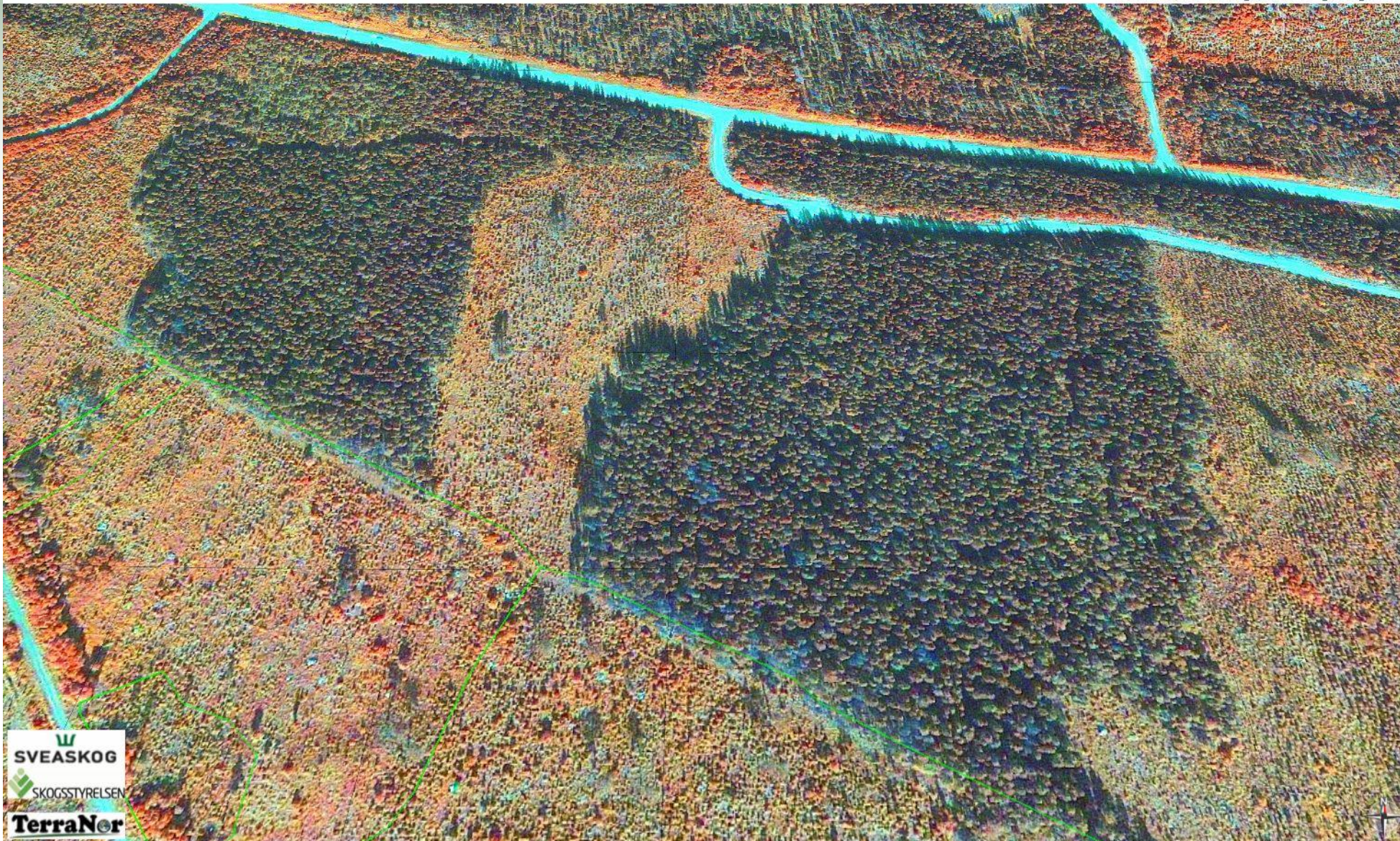
Project for Sveaskog and Skogsstyrelsen



How to use high resolution data for nature mapping



Barkborre analyse GeoEye og ITC



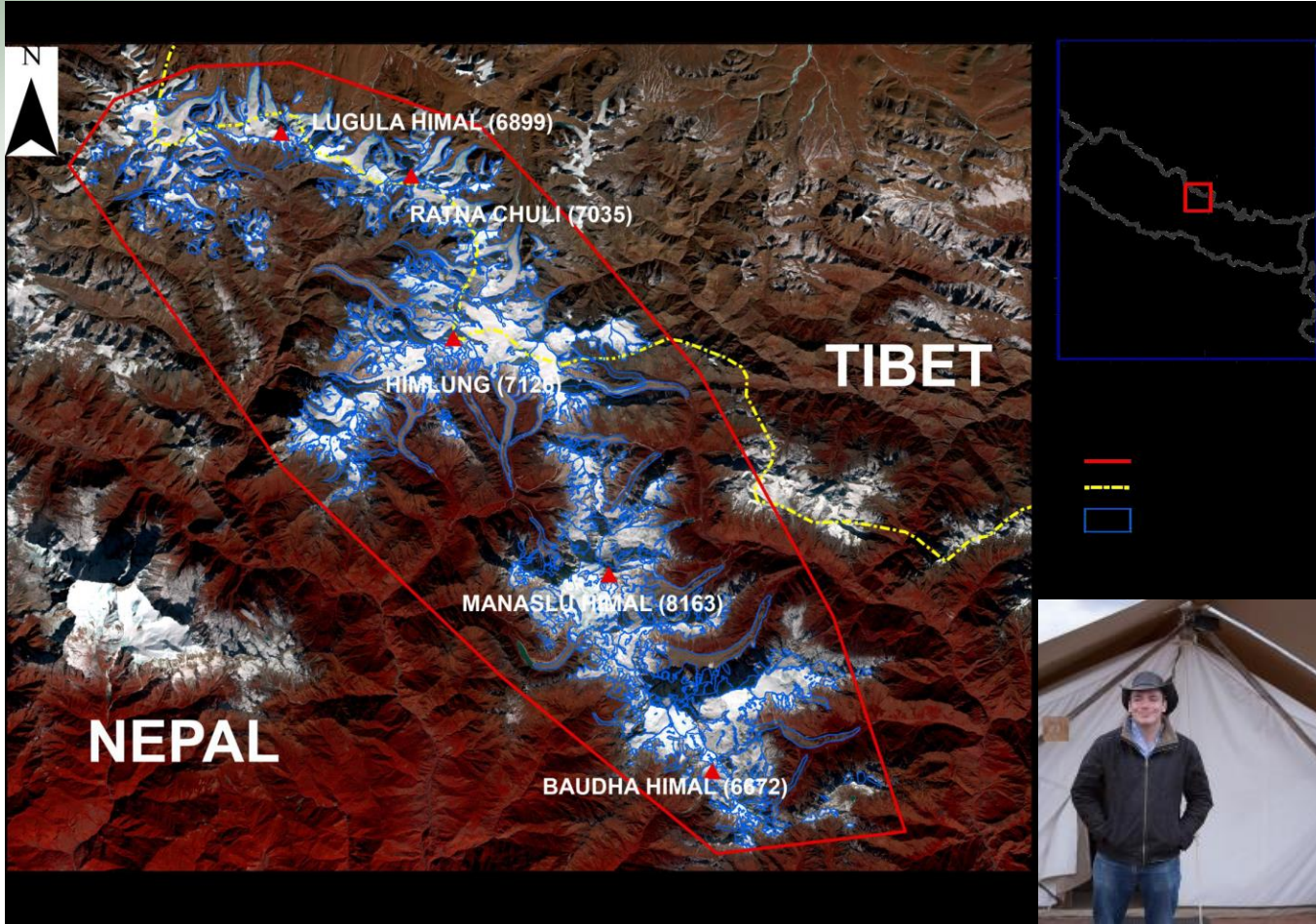
How to use high resolution data for nature mapping



Barkborre analyse GeoEye og ITC



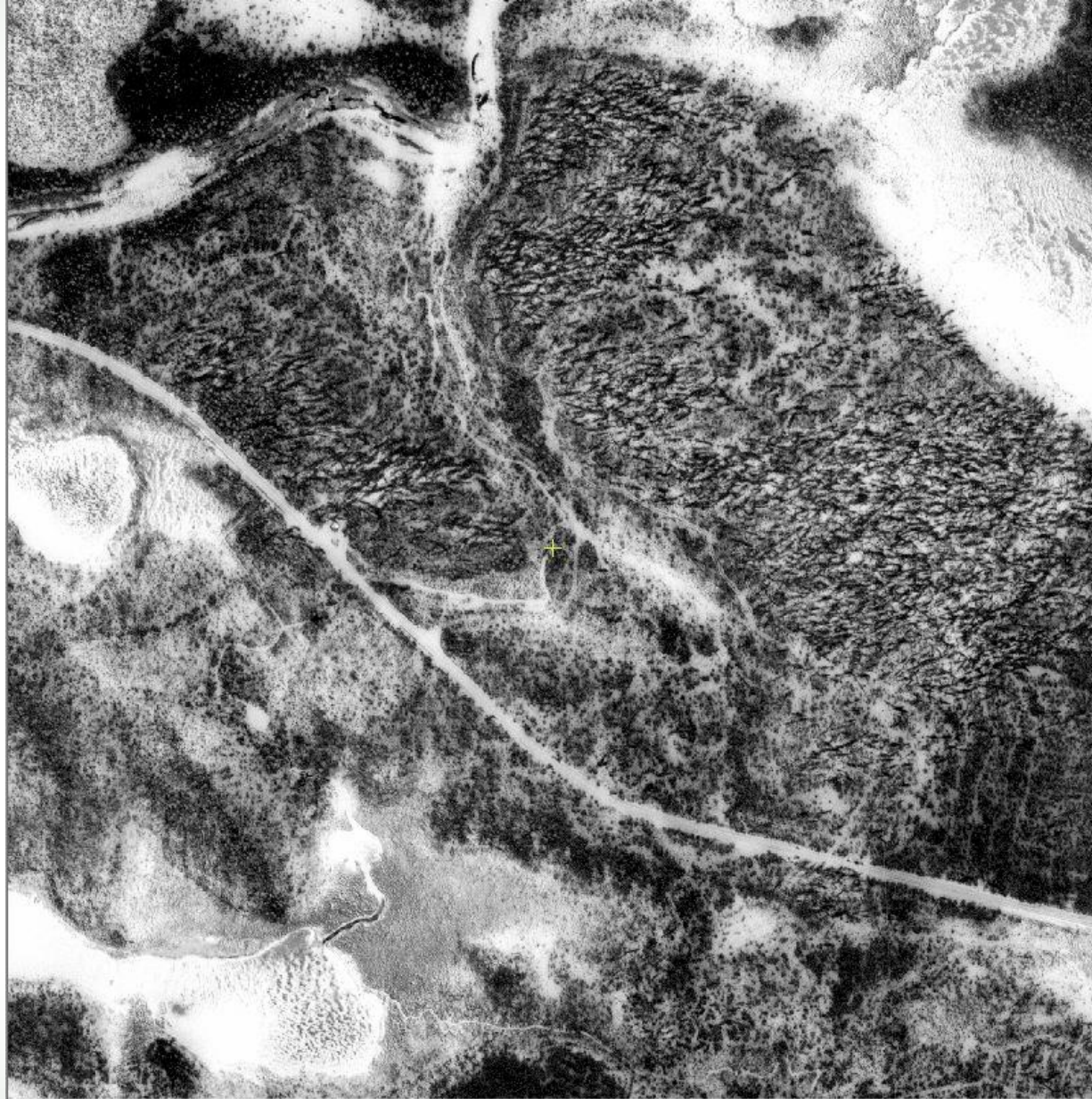
Dr. Benjamin Robson - Glaciers and rock glaciers



Keith Peterson – Trimble eCognition team



Storm felling



Cod liver oil gives vit D in Winter time

ULTRAVIOLET SPECTRUM

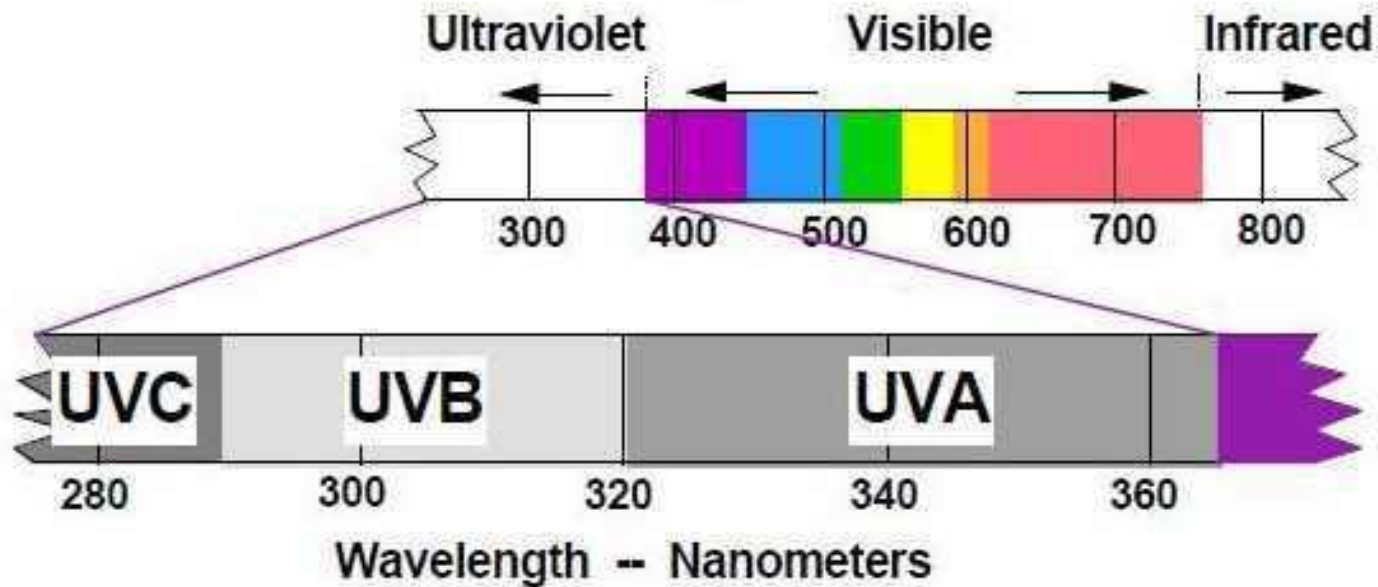
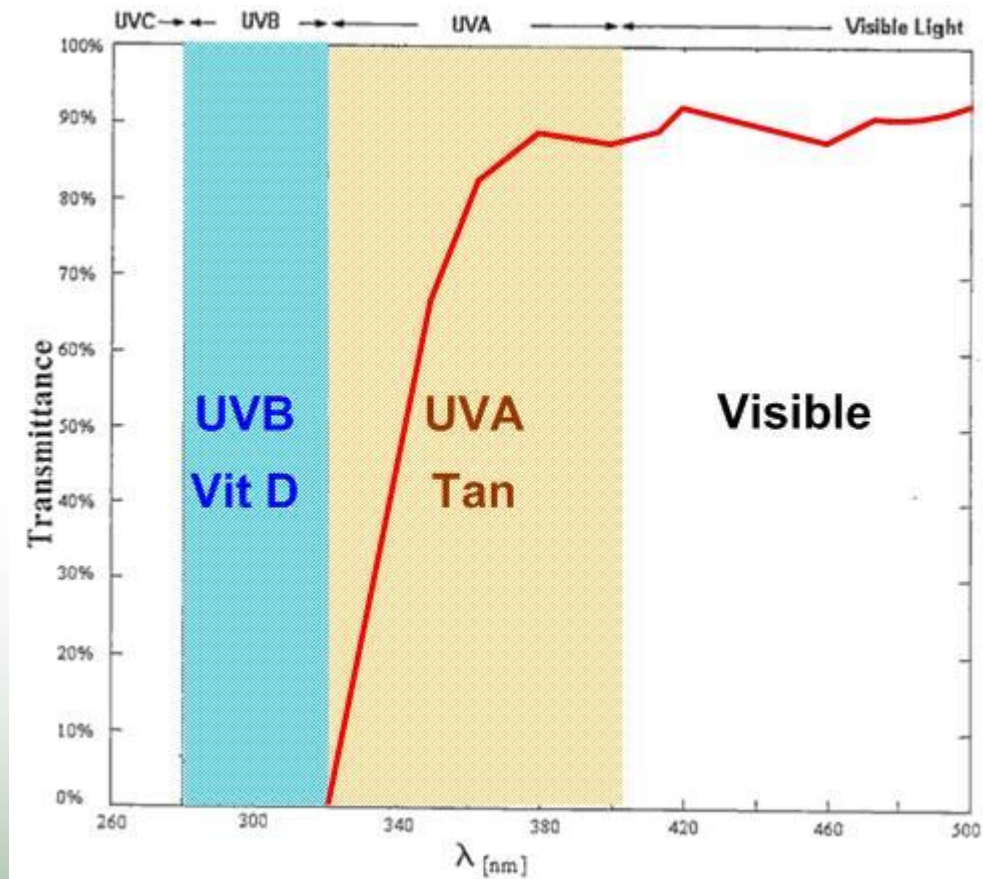


Figure 1 Diagram showing ultraviolet portion of solar spectrum.

Courtesy of Colorado State University UV-B Monitoring and Research Program which is funded by the USDA





Thank you for coming
Thank you for presenting
Drive carefully back home