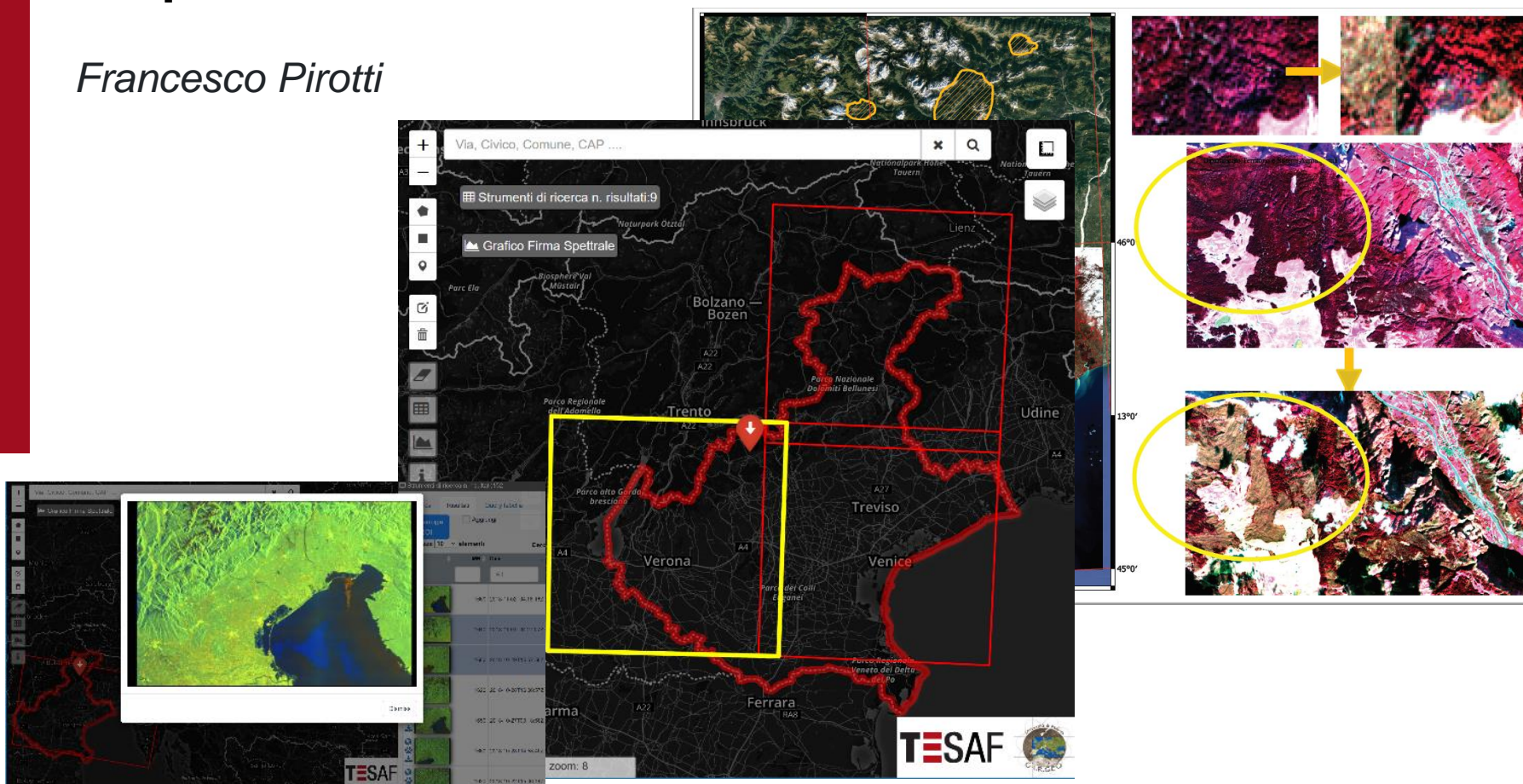


Il ruolo delle tecnologie di telerilevamento e GIS nel supporto alle operazioni di risposta all'evento VAIA

Francesco Pirotti





Geomatica per il territorio

- Telerilevamento
 - Ottico passivo
 - RADAR / SAR
 - Laser scanner
 - Fotogrammetria
- SIT / GIS



TELERILEVAMENTO



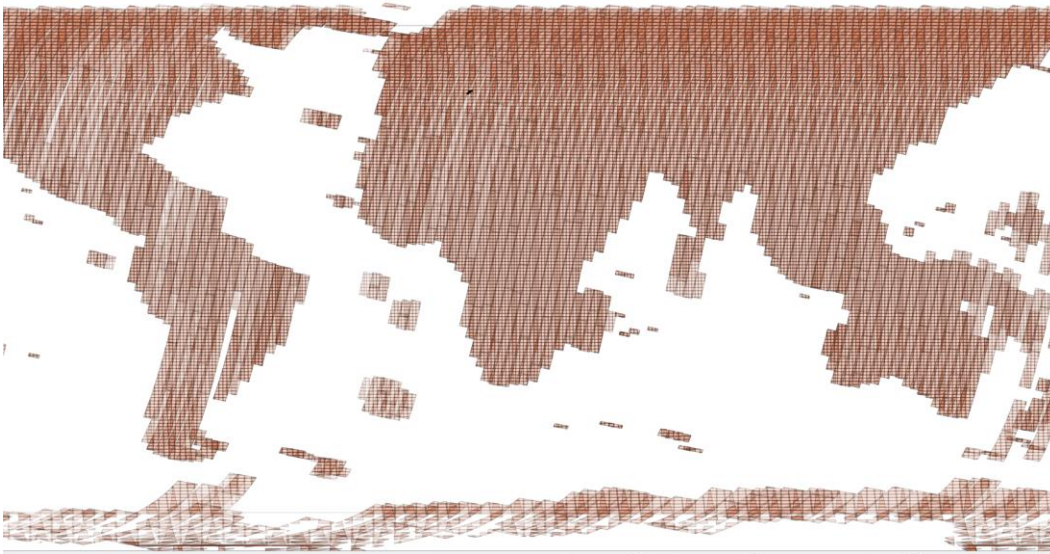
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TELERILEVAMENTO



Costruttore di interrogazioni

Imposta filtro della sorgente dati su s2

Campi

- ingestiondate
- beginposition
- endposition
- orbitnumber
- relativeorbitnumber
- cloudcoverpercentage
- uuid
- format

Operatori

= < > <= >=

Espressioni filtro specifiche del gestore

"beginposition" > '2019-02-08'

OK Test Pulisci Annulla

Valori

Cerca...

Campione Tutto

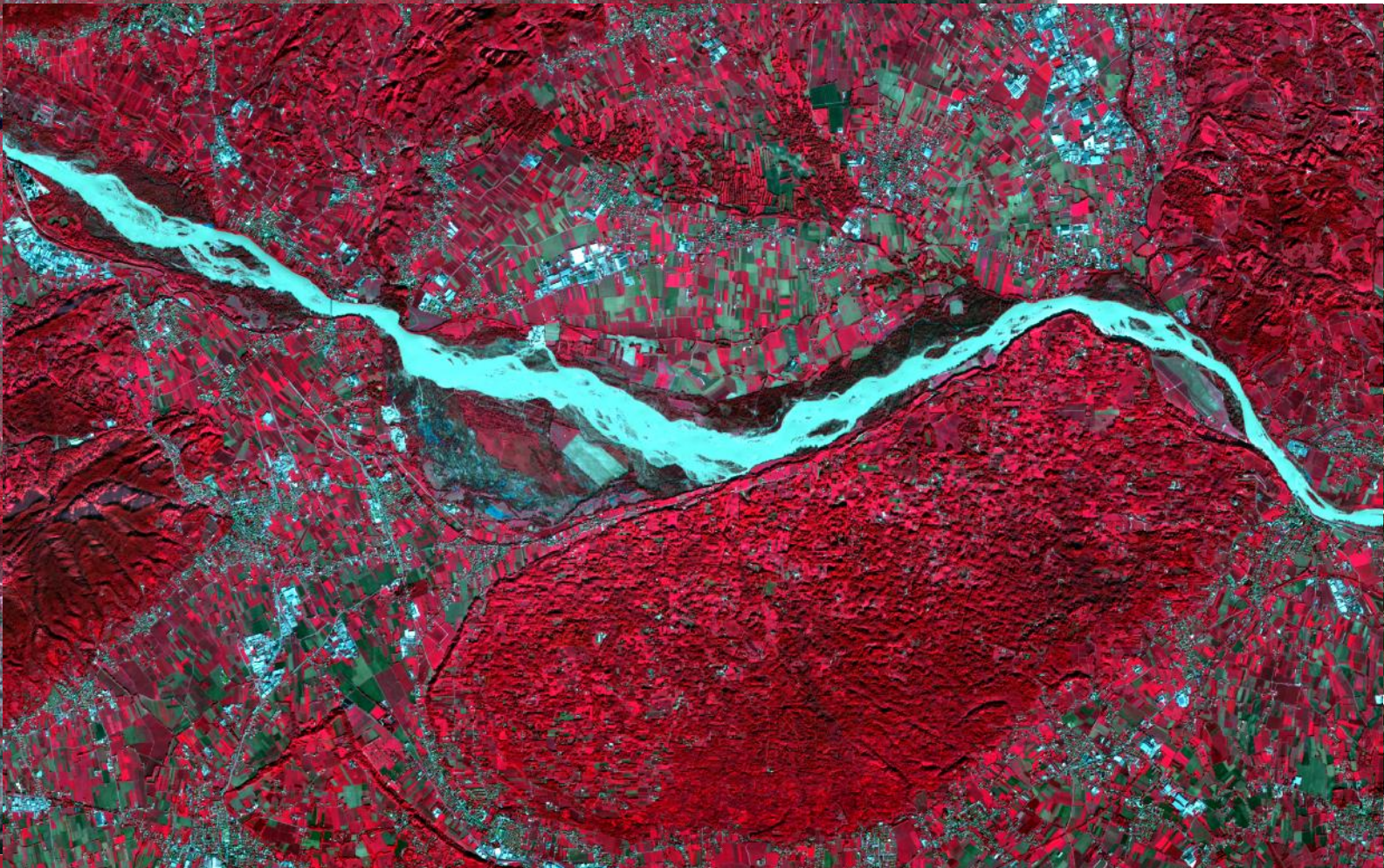
Usa layer non filtrato

Risultato dell'interrogazione

i Clausola di condizione (where) restituisce 201783 righe.

OK

OTTICO PASSIVO



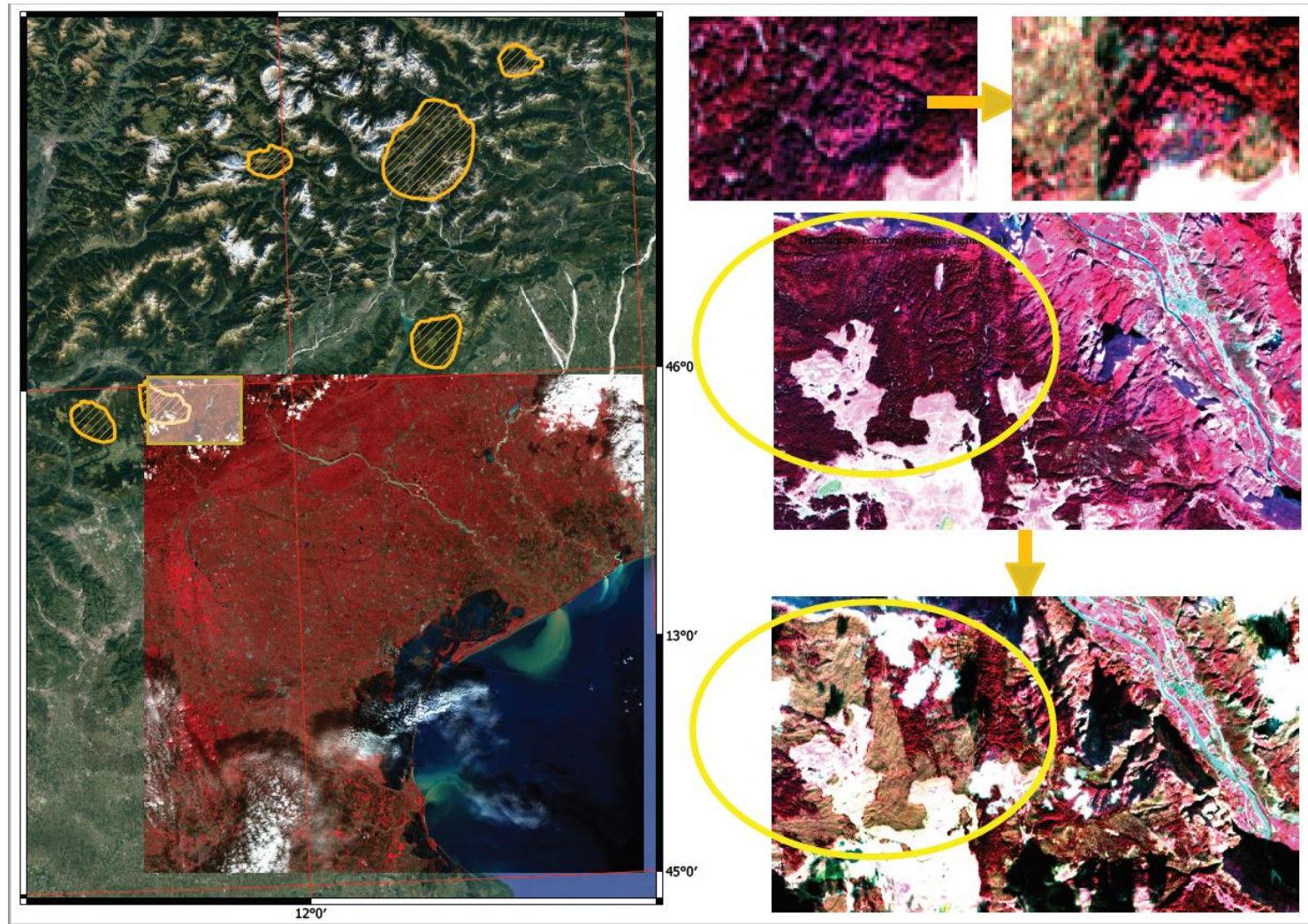
TESAF

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e Sistemi Agro-Forestali



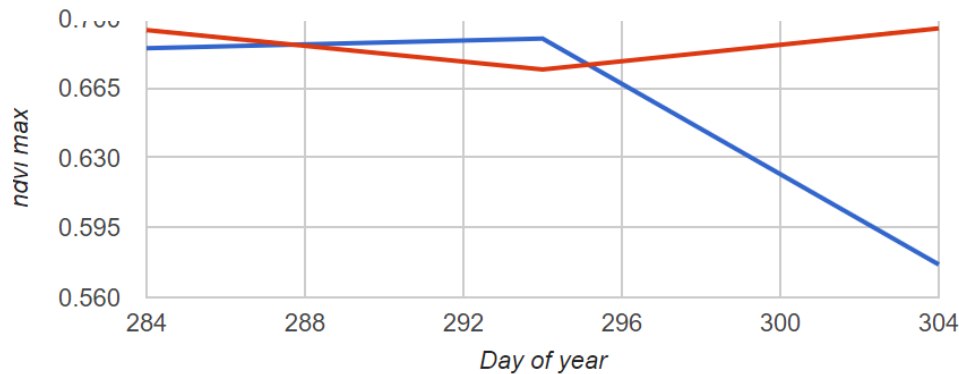
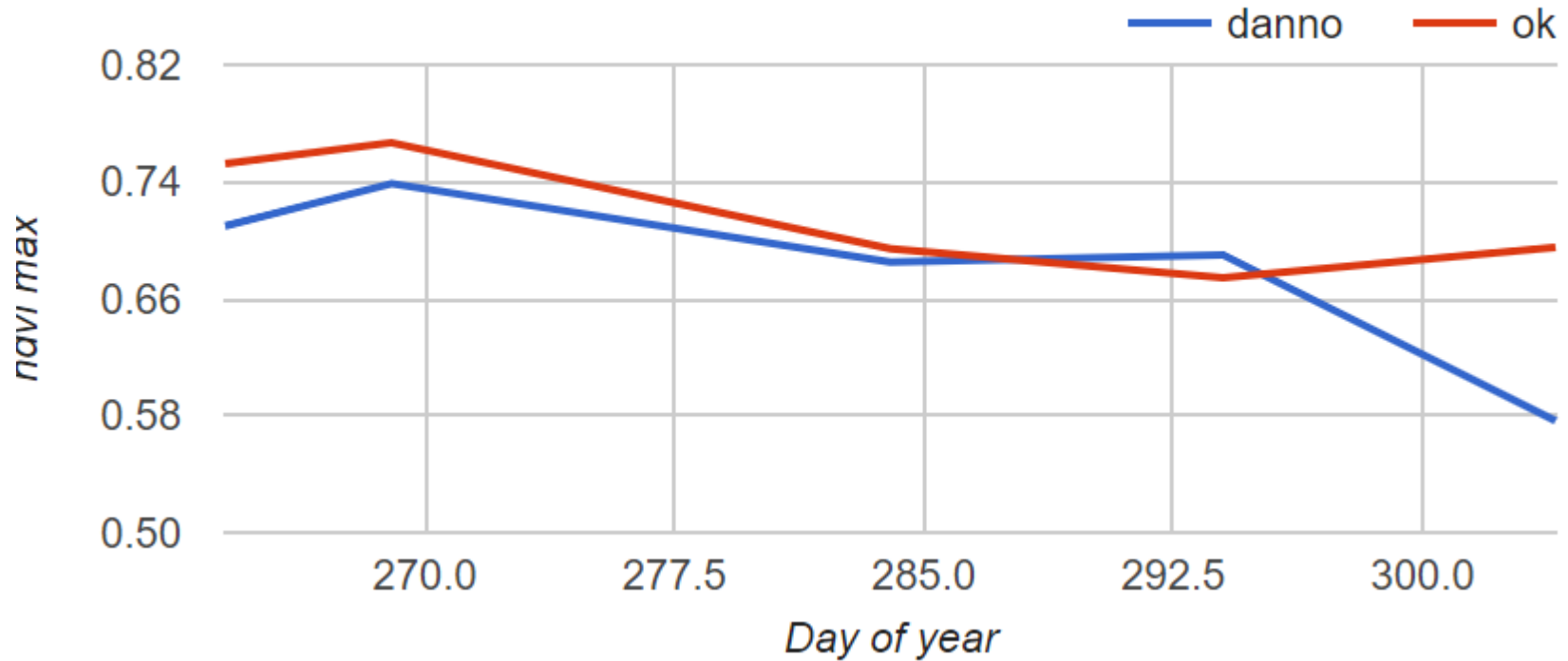
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VAIA: identificare e quantificare

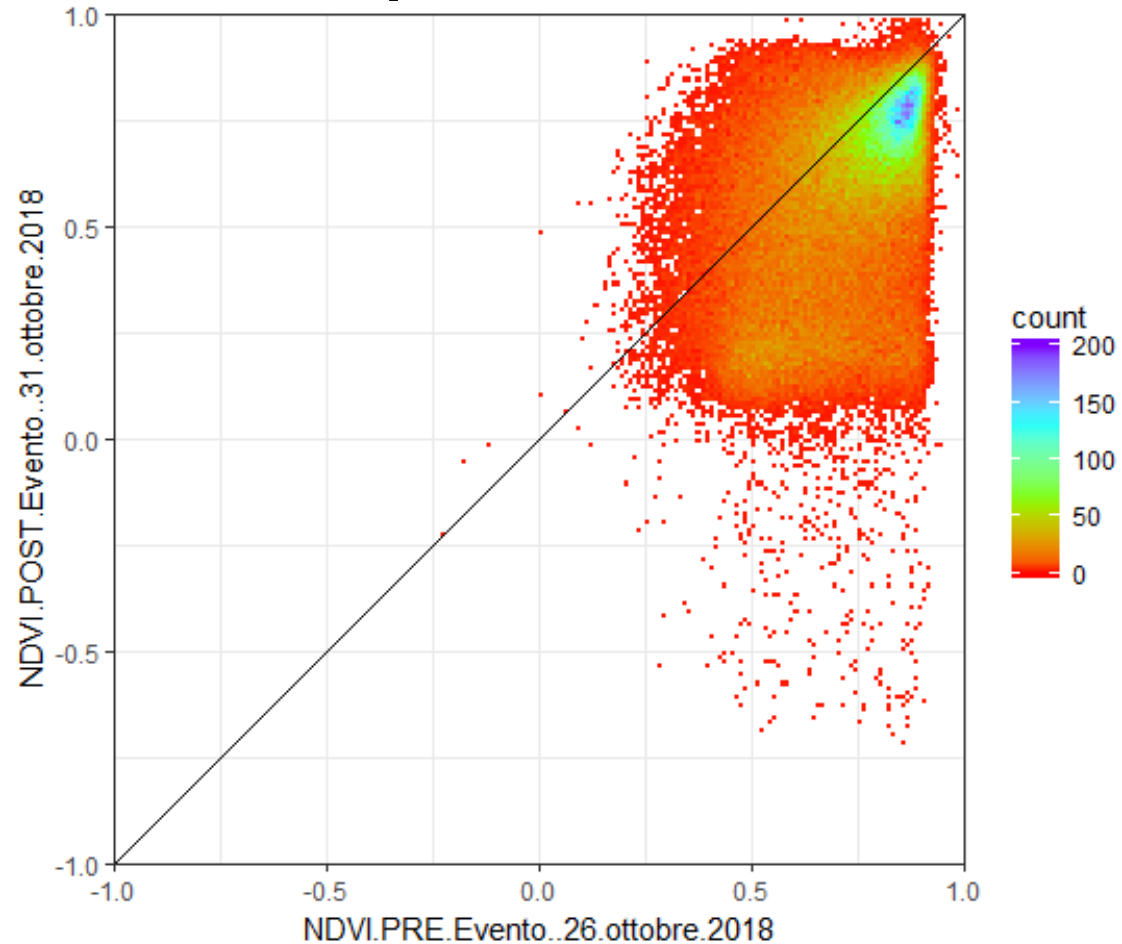


VAIA: identificare e quantificare

ndvi max by day of year in 2 regions



VAIA: identificare e quantificare

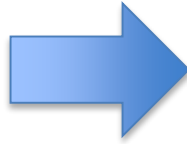


Sentinel 2 NDVI

Pre-elab: mask snow, cloud e SCL classe vegetazione

VAIA: identificare e quantificare

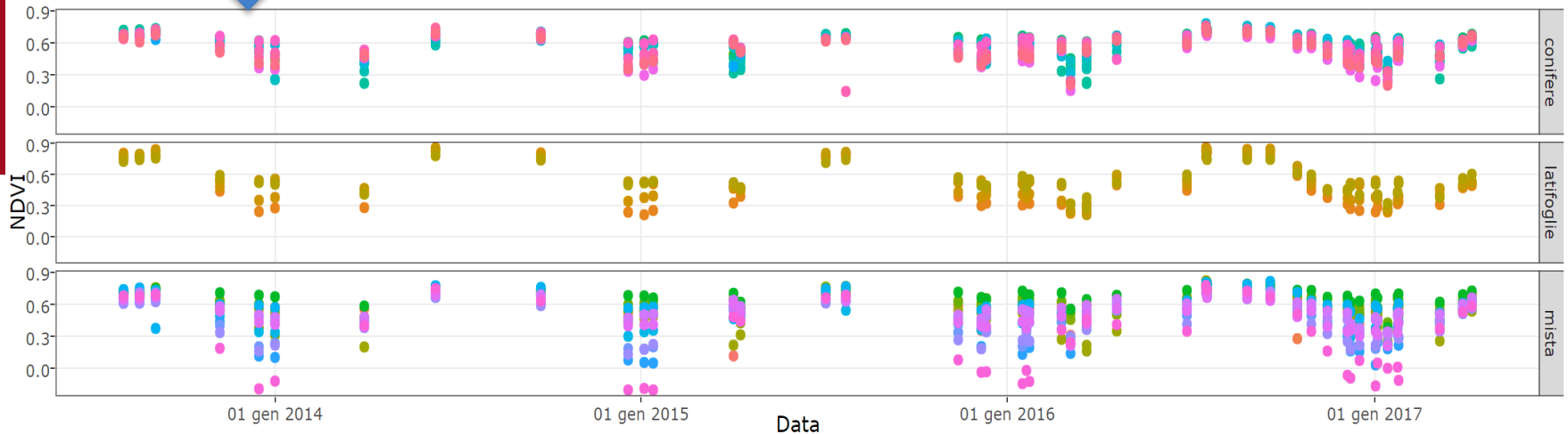
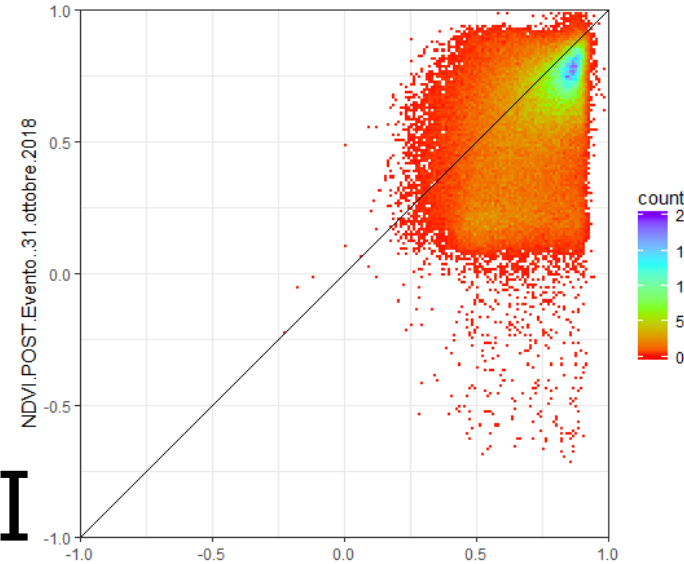
Calo NDVI
area Marcesina



Calo NDVI fisiologico

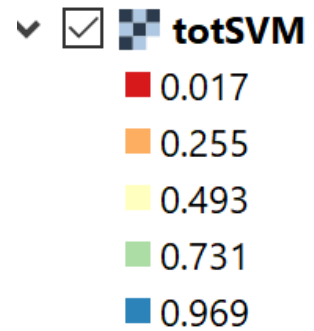
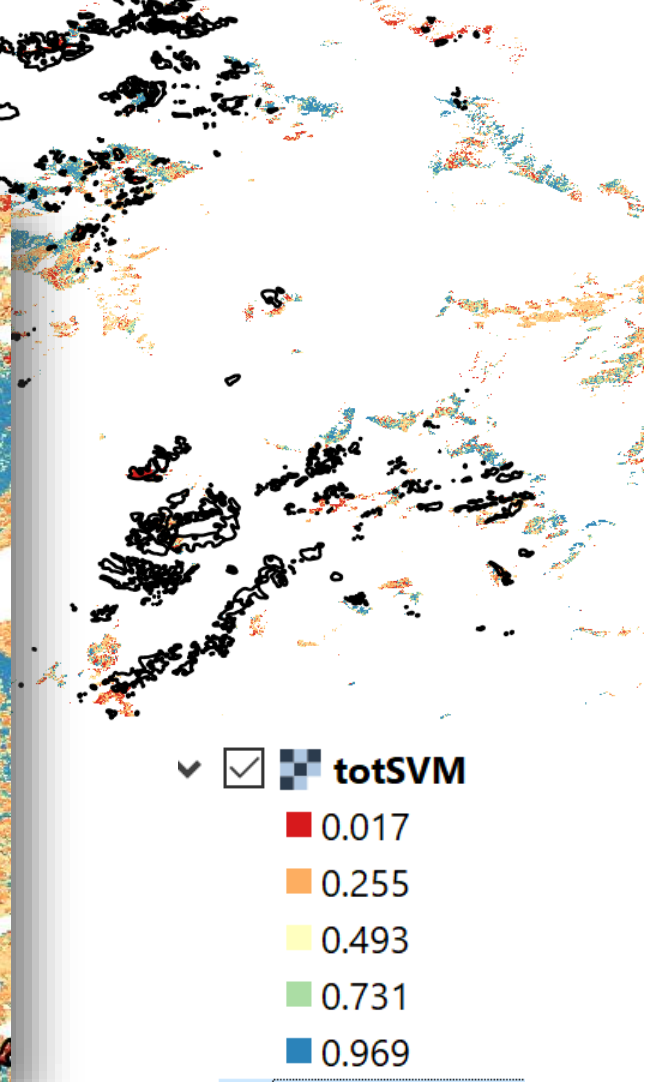
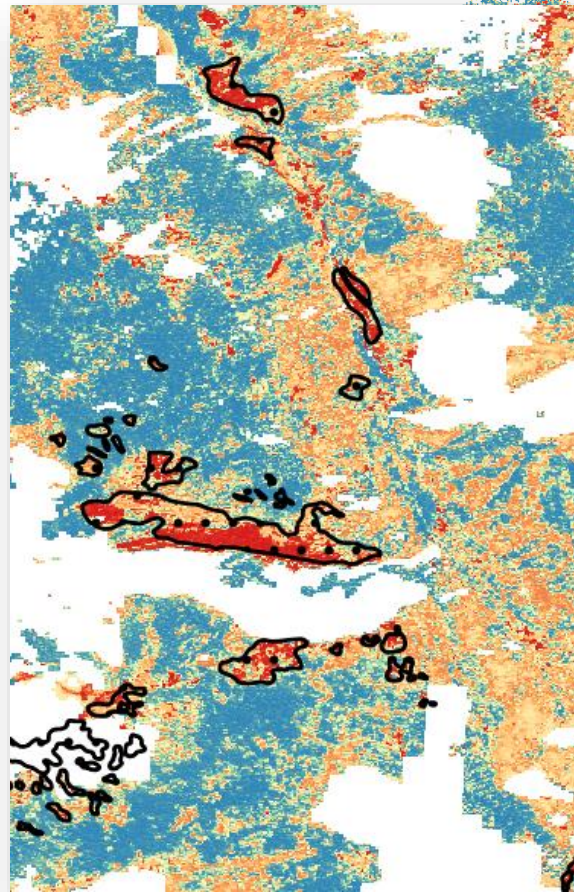
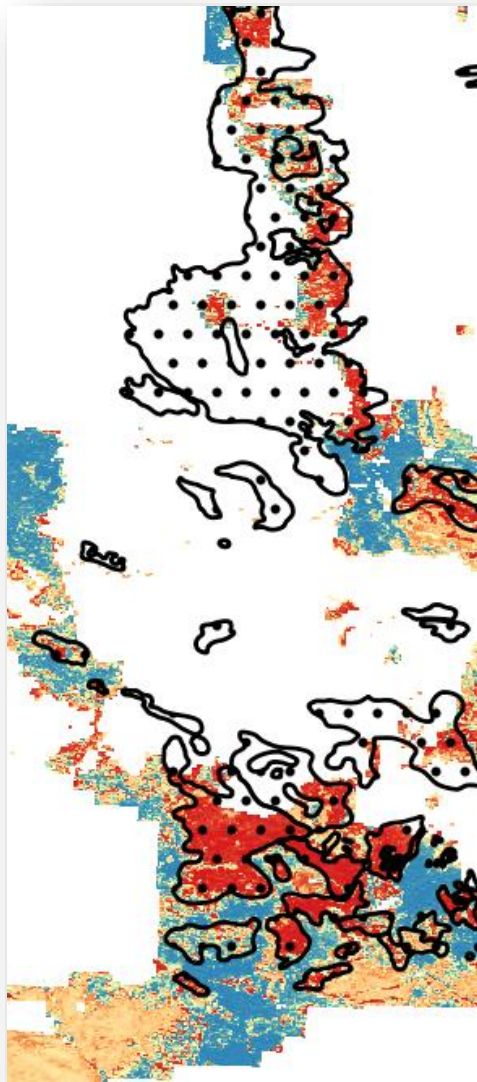


Sentinel 2 NDVI



*D'Este, M., Pirotti, F., 2017. Stima della proporzione di specie forestali decidue sfruttando NDVI. *XXI Conferenza Nazionale ASITA*, 417–424

VAIA: identificare e quantificare

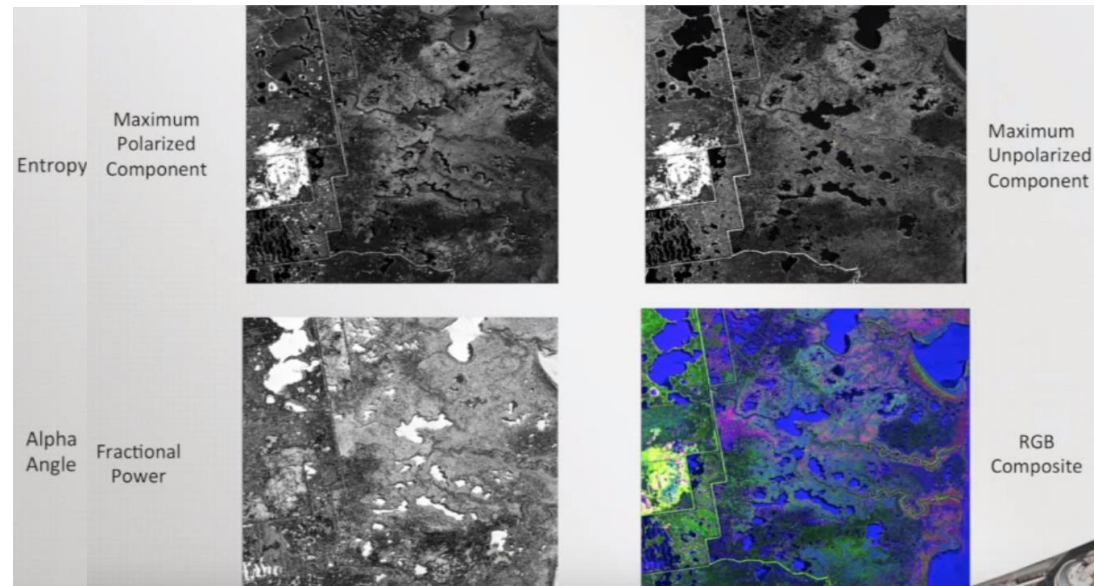
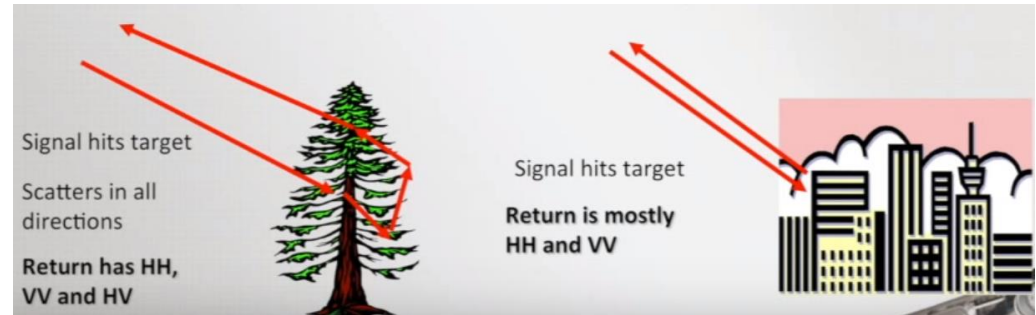


SAR RADAR

2 «classi» di
utilizzo

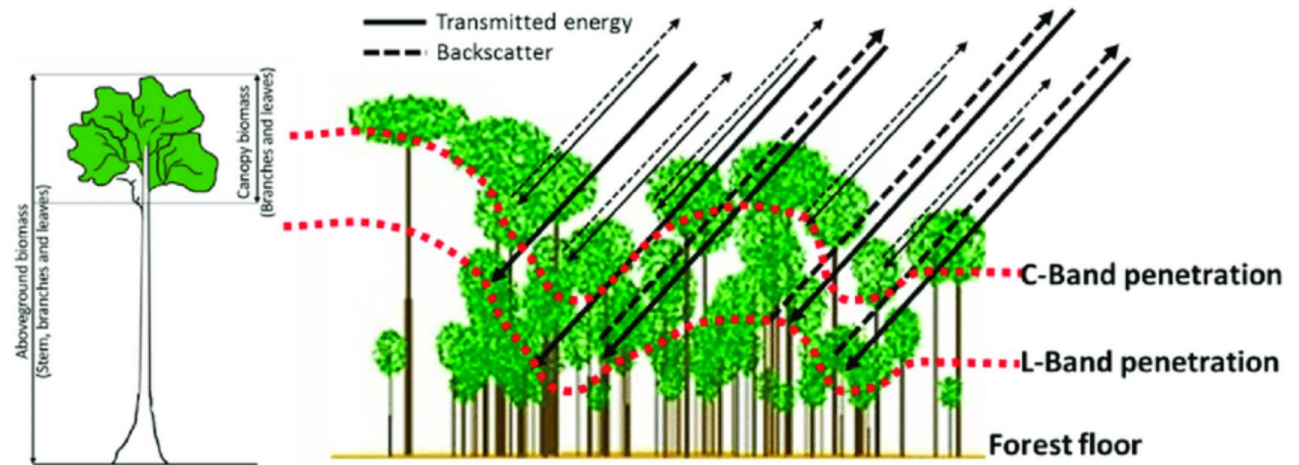
- Deformazioni (mm) – interferometria (Δ fase)
- Backscatter segnale + polarizzazione + Δ coherence
- ...

Courtesy of PCI Geomatica

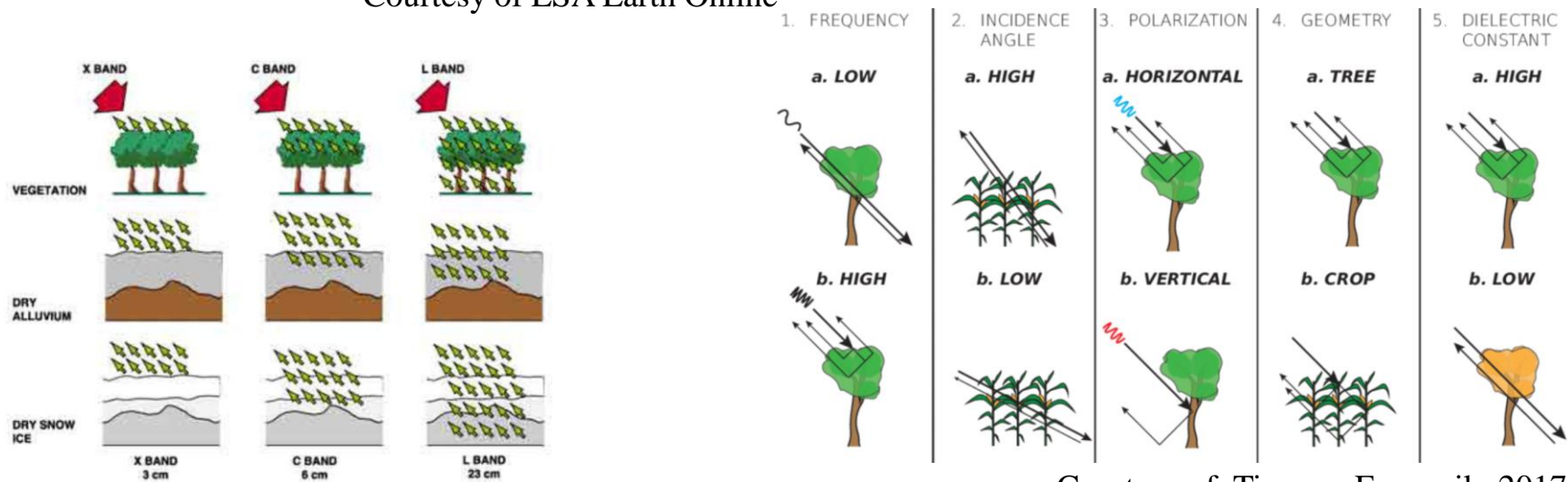


Courtesy of PCI Geomatica

SAR RADAR



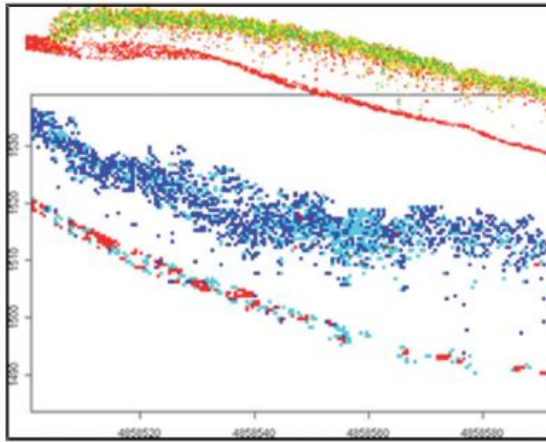
Courtesy of ESA Earth Online



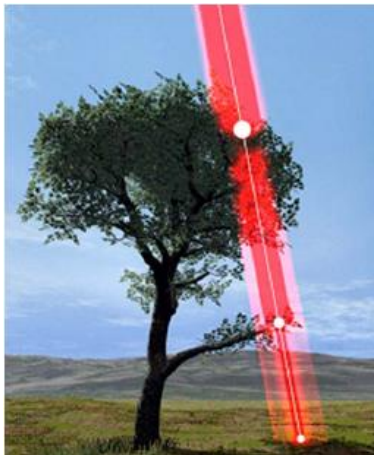
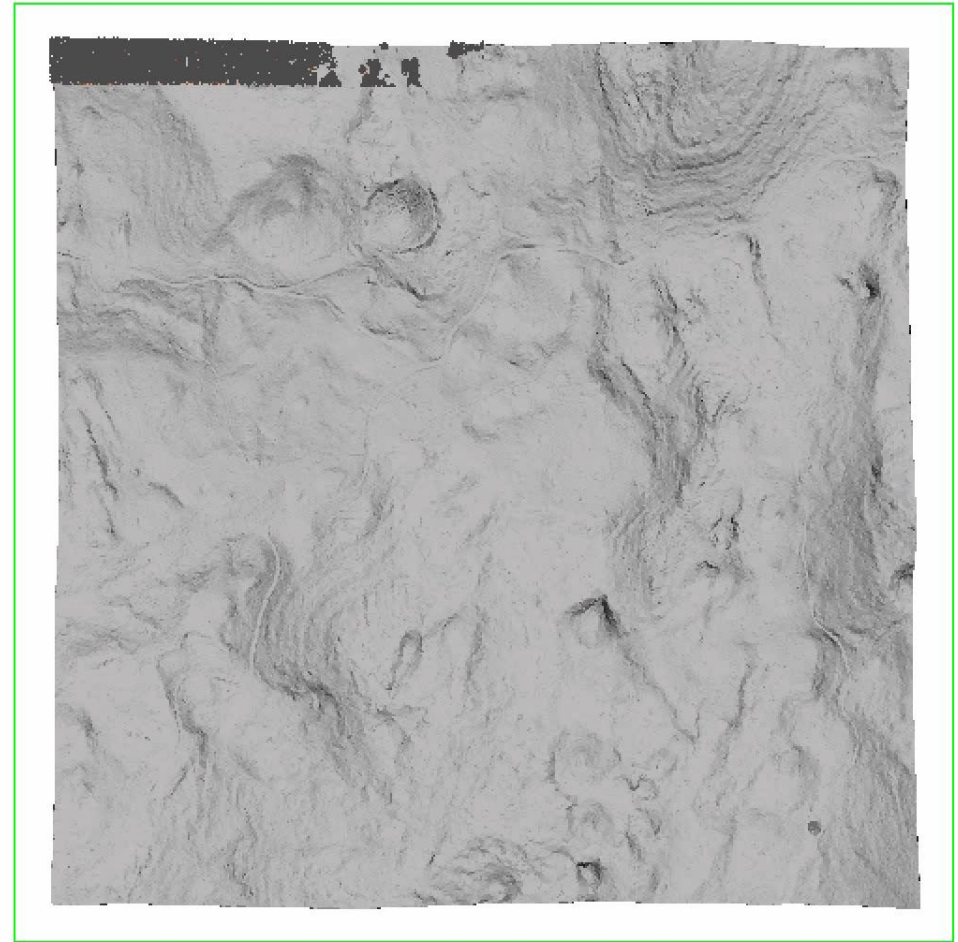
Courtesy of ESA Earth Online

Courtesy of Tim van Emmerik, 2017.
Water stress detection using radar.

Lidar



Pirotti, F., Grigolato, S., Lingua, E., Sitzia
Environmental Sciences. *Italian Jou.*



Courtesy of Jan Skaloud
École Polytechnique Fédérale de Lausanne

VAIA: identificare e quantificare

The screenshot shows a web browser window with the URL `geolab.vs-ix.net:3636/pfn/#`. The main interface features a map of Italy with a red outline indicating a search area. A search bar at the top left contains the text "Via, Civico, Comune, CAP ...". To the right of the search bar is a "Carica dati extra" dropdown menu set to "AVEPA".

The central "Strumenti di ricerca" (Search Tools) panel includes the following elements:

- Buttons for "Ricerca", "Risultati", and "Query tabella".
- "Piattaforma:" dropdown set to "Sentinel-2".
- "Data:" range from "2014-06-15" to "2019-02-20".
- "Stringa identificatore:" input field with the example "e.g. S2A_MSIL2A_20180323T102021_N0206_R065_T32TPR_20180323T123106".
- Filters for "Mese:" (seleziona mese/i), "G. sett.:" (seleziona giorno/i de), and "G. mese:" (seleziona i).
- "Orbita" options: "ASCENDING" (checked) and "DESCENDING".
- "Copertura nuvolosa massima (%):" slider set to 10, ranging from 0 to 100.
- "Liv. Elab.:" input field.
- "SEARCH" button and a checkbox for "Solo immagini caricate nel DB".

At the bottom of the interface, there is a "Grafico Firma Spettrale" section with a "Scarica tabella" button. The background map shows various Italian cities and regions, including Bolzano, Verona, Ferrara, Bologna, and Ravenna.



VAIA: identificare e quantificare

- Aree definite con telerilevamento
- Validazione con aree rilevate a terra
- Inserimento in contesto GIS per supporto alle decisioni mediante analisi geospatial:
 - Logistica
 - Scenari di aumento rischio (valanghe ARPAV)
 - Monitoraggio interventi con web-gis
 - Dati aggregati e distribuiti sul territorio (volume per comune, ranking comuni più impattati etc...)

VAIA: identificare e quantificare

The image displays a QGIS interface with a 3D terrain map and a 2D aerial view. The 3D map shows a mountainous region with yellow and red markers. The 2D view shows a similar region with yellow outlines. A metadata window is open on the right, showing details for a layer named 'veneto'.

Informazioni risultati

Geometria	Valore
▼ veneto	
▼ Name	
> (Derivato)	
> (Azioni)	
Name	
description	
timestamp	NULL
begin	NULL
end	NULL
altitudeMode	
tessellate	-1
extrude	0
visibility	-1
drawOrder	NULL
icon	
objectid_1	8209
codice_istat	05
comune	

Modalità Layer in Apri modulo automaticam
Vista Albero

Coordinate: 703372,5143106 Scala: 1:439468 Lente d'ingrandimento: 100% Rotazione: 0,0 ° Visualizza EPSG:32632