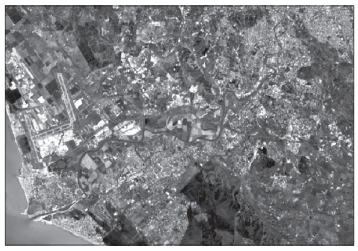
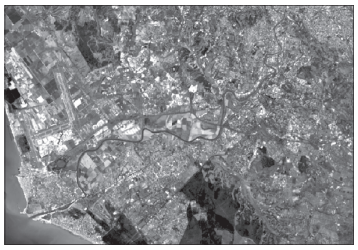
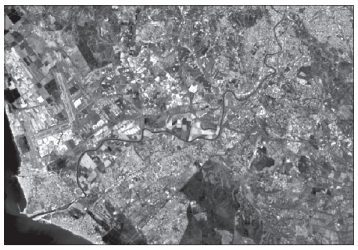


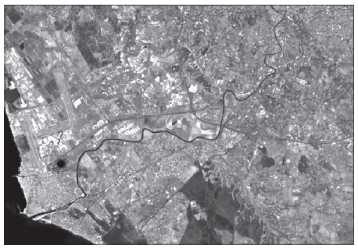
1a. Sentinel-2, band 2 (490nm, blue).



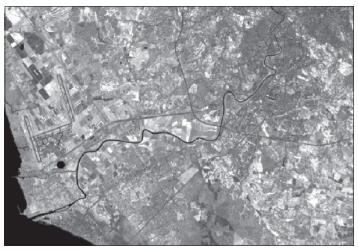
1b. Sentinel-2, band 3 (560nm, green).



1c. Sentinel-2, band 4 (665nm, red).

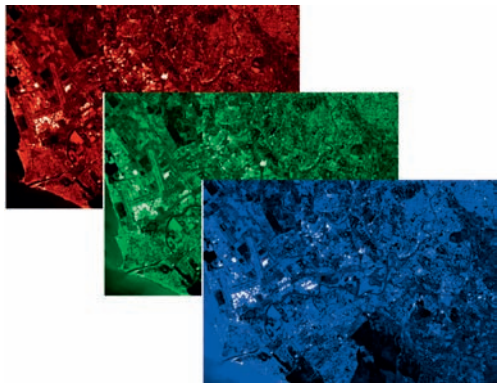


1d. Sentinel-2, band 5 (705nm, red).

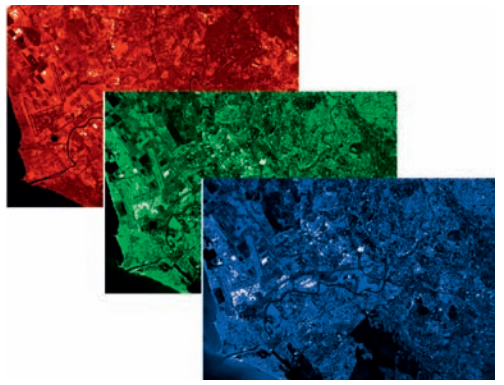


1e. Sentinel-2 band 8 (865nm, IR).

4. Electromagnetic spectrum, atmospheric transmission, properties of selected sensors.



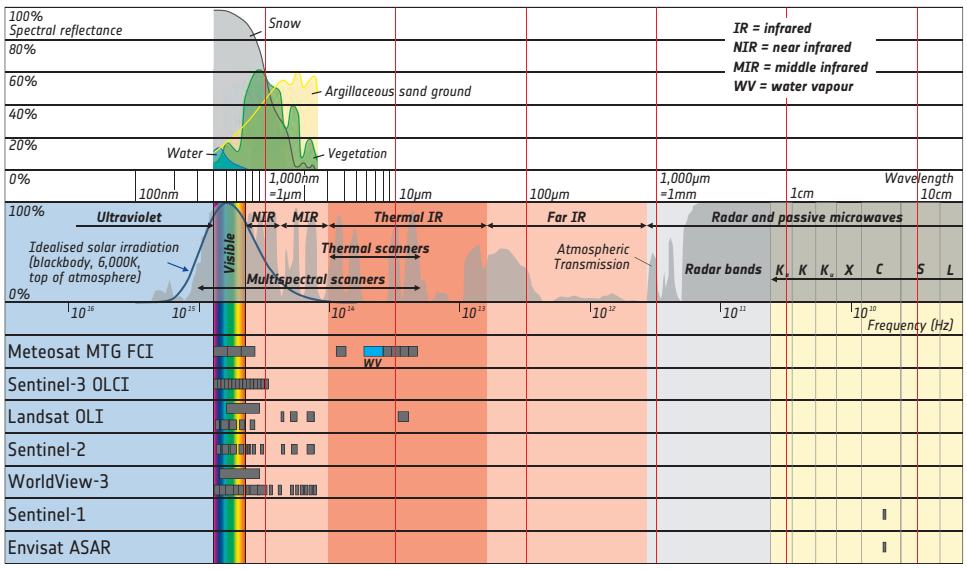
2a. Sentinel-2, bands 4, 3, and 2 prepared for combination into a true colour image.

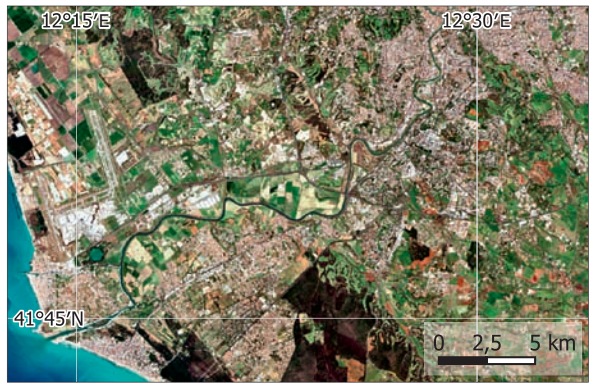


2b. Sentinel-2, bands 8, 4, and 3 prepared for combination into a false-colour infrared image.

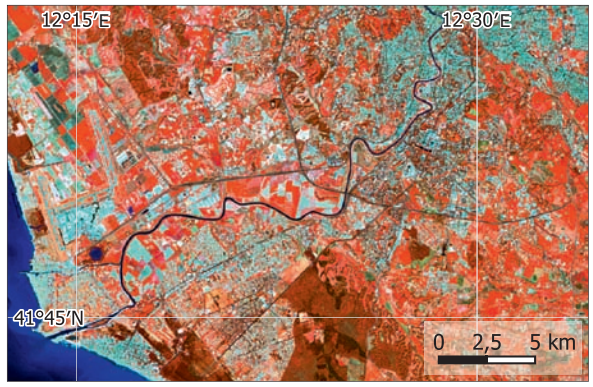
From Data to Images

Most Earth observation satellites do not deliver standard colour images. They rather acquire series of greyscale images in different parts of the electromagnetic spectrum. These image bands are used for scientific evaluations, and, similar to the procedures applied in printing and display technology, they are combined to produce colour images of various types.
Different from usual photography, the greyscale image bands are combined in various ways. Depending on the application, images are produced in natural colours (true-colour image), false-colour infrared and other band combinations.

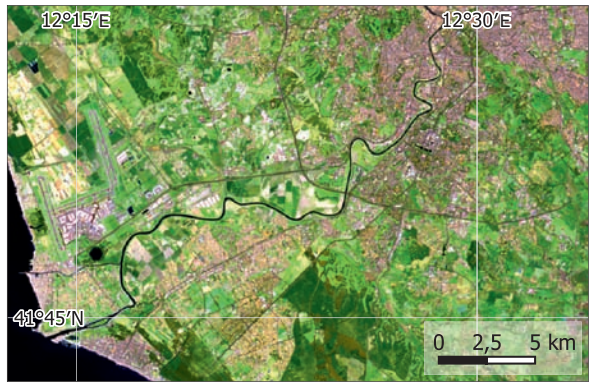




3a. True colour image of the region west of Rome produced using the bands 4, 3, and 2. Data: Sentinel-2, 2022-03-21.



3b. False-colour infrared image of the region west of Rome produced using the bands 8, 4, and 3. Sentinel-2, 2022-03-21.



3c. False colour infrared image of the region west of Rome produced using the bands 12, 11, and 4. Sentinel-2, 2022-03-21.

True colours and False-colour infrared Images

While true colour images are used to show the Earth “as it is” (i.e. as it would appear to the human eye) for mapping and illustration purposes, other representations are used to highlight specific properties of the displayed area.
Important additional information is contained especially in the infrared image bands. This information is used e.g. to highlight and to analyse properties of plants, because the chlorophyll contained in the leaves reflects the infrared part of the sunlight very well. This makes this data a valuable information source for applications in agriculture and nature protection.
Other uses for false-colour infrared representations using other infrared bands include analyses of fires and volcanic activities, and of properties of urban spaces.