



Musaicum East Asia regional satellite image mosaic

Version 1

Product Information



produced by:

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Product description

The *Musaicum East Asia* is a regional visible color satellite image mosaic of East Asia with a ground resolution of 10 m. It combines recent Sentinel-2 satellite imagery into the highest quality and most cloud free depiction of the region in this resolution class available today.

Coverage includes mainland China, Taiwan, Mongolia, North and South Korea and Japan. Not included are islands and reefs of the South China Sea.

It is generated using a classical mosaicing process derived from the methods and techniques developed for local mosaics, but with a high degree of automatization. This eliminates most of the time intensive manual steps, while maintaining high quality standards.

Compared to the Green Marble, the *Musaicum United States* offers much higher spatial resolution (10 m compared to 250/300 m) at the cost of slightly more heterogeneous coloring due to the smaller data basis. Cloud occurrence is comparable to my hand produced local mosaics with less than about one in 100k pixels significantly affected by clouds.

Compared to the *Musaicum EU-Plus*, the *Musaicum West Asia* and the *Musaicum United States*, aggregation techniques have been further improved, in particular regarding the different climate of the region.

Primary data source for the image is Sentinel-2 imagery from 2019 to 2025, in smaller parts also from 2016 to 2018.

Key properties

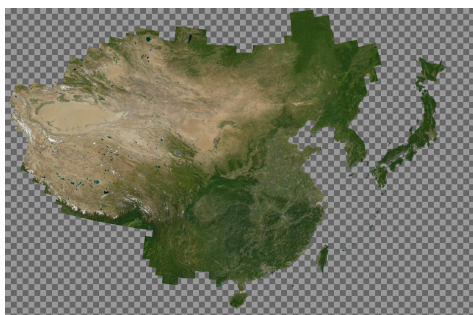
- Visible color mosaic of East Asia including mainland China, Taiwan, Mongolia, North and South Korea and Japan.
- 10 m base resolution.
- Based on Sentinel-2 data from 2016 to 2025.
- Includes full coverage of smaller lakes and coastal waters, no coverage of the open ocean and a few larger lakes.
- Shows atmosphere compensated surface color, available either as linear surface reflectance values or tone mapped for direct display.
- Available with illumination as recorded and with shading compensation.



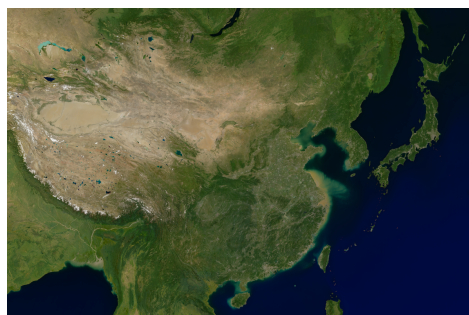
Product packaging

The mosaic is produced in different projections for different parts of the coverage area and is assembled in the target projection on demand. The previews of the whole mosaic for the Contiguous United States and Alaska shown here are in Lambert conformal conic projection. For use in web maps in Mercator projection by default a z14 grid (9.5546 m nominal resolution) is provided.

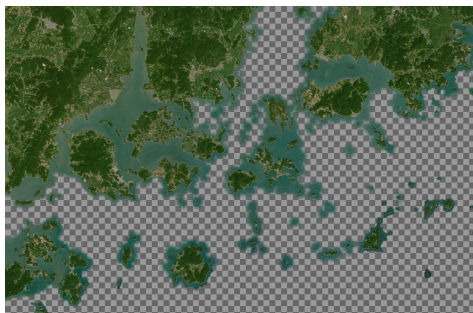
The standard form of distribution of this mosaic is with an alpha channel for seamless blending with a background image for the open ocean – like the Green Marble. This is illustrated in the samples below. Other variants can be produced on request.



(a) Mosaic as is without ocean background



(b) With Green Marble based ocean background



(c) Mosaic as is without ocean background



(d) With Green Marble based ocean background

Ocean blending with the supplied alpha channel (top: whole image, bottom: detail)

Product options

In addition to the mosaic with illumination as recorded – which is the recommended version for direct visual applications – this mosaic is also available in a shading compensated version, where the differences in illumination due to the topography and shadows cast by mountains are compensated for. This version can be used, for example, in application where a synthetic illumination is used to generate a custom shading effect.

Supplementary to the visual color mosaic a vegetation data set is available with the same coverage and source data, documenting the fractional herbaceous and woody vegetation as well as fractional water cover for every 10m pixel.



(a) Mosaic with illumination as recorded



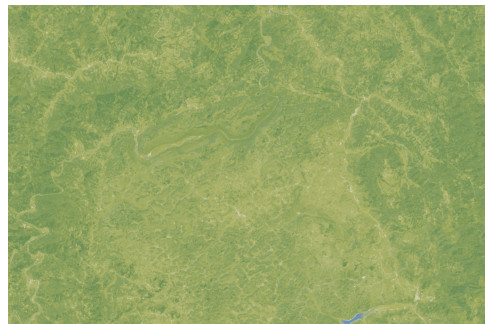
(b) With with shading compensation



(c) Mosaic with illumination as recorded



(d) With with shading compensation



(e) Vegetation map visualization

Shading compensated mosaic variant and vegetation map (top: Bugyai Kangri mountains, bottom: South China Karst)



(a) Gwangyang Steel Works, South Korea



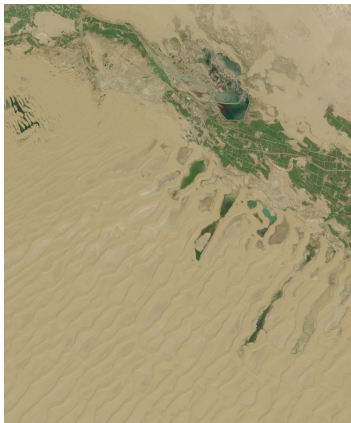
(b) Aquacultures near Ningde, South China



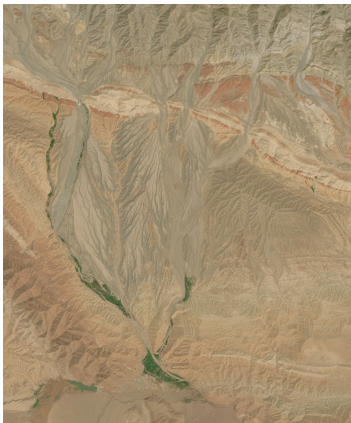
(c) Yuan River floodplain near Yuanjiang, China



(d) Minya Konka, Sichuan, China



(e) Taklamakan dunes, Xinjiang, China



(f) Oksalur, Xinjiang, China



(g) Kangri Karpo Glaciers, eastern Tibet, China



(h) Baotou, Inner Mongolia, China



(i) Dry lake and glacier in eastern Mongolia

Examples from the Mosaic East Asia



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Kanmon Straits, Japan in Musaicum East Asia version 1