# Surface Soil Moisture over Continental Europe, daily, 1km resolution

Surface Soil Moisture (SSM) is the relative water content of the top few centimetres soil, describing how wet or dry the soil is in its topmost layer, expressed in percent saturation. It is measured by satellite radar sensors and allows insights in local precipitation impacts and soil conditions.

SSM is a key driver of water and heat fluxes between the ground and the atmosphere, regulating air temperature and humidity. Moreover, in its role as water supply, it is vital to vegetation health. Vice versa, SSM is very sensitive to external forcing in the form of precipitation, temperature, solar irradiation, humidity, and wind. SSM is thus both an integrator of climatic conditions and a driver of local weather and climate, and plays a major role in global water-, energy- and carbon- cycles.

Knowledge on the dynamics of soil moisture is important in the understanding of processes in many environmental and socio-economic fields, e.g., its impact on vegetation vitality, crop yield, droughts or exposure to flood threats.

*Proposition de citation*
European Commission Directorate-General Joint Research Centre. Surface Soil Moisture over Continental Europe, daily, 1km resolution. http://land.copernicus.vgt.vito.be/geonetwork/srv/api/records/urn:cgls:global:ssm_v1_1km

# Simple

Date ( Creation )
2018-12-18

Edition
Version 1

Edition date
2018-12-19

Identifier
urn:cgls:global:ssm_v1_1km

Date ( Publication )
2017-01-01

Other citation details
https://land.copernicus.eu/global/documents/ssm1km/v1/pum

Purpose
This product is first designed to fit the requirements of the Global component of the Copernicus Land service. It can be also useful for all applications related to environment monitoring.

Credit
SSM1km products were generated by the Global Land Service of Copernicus, the Earth Observation programme of the European Commission. The research leading to the current version of the product has received funding from various European Commission Research and Technical Development programs. This product has been generated from Sentinel-1 C-band SAR observations distributed by ESA.

Status
Completed

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Maintenance and update frequency
As needed

Update scope
Series

Name
netCDF

Version
4

Specification
Network Common Data Form

GEMET - INSPIRE themes, version 1.0 ( Theme )

- Orthoimagery

GEMET - Concepts, version 2.1

- geophysical environment

Mots clés ( Theme )

- biogeophysical , soil moisture

Mots clés ( Place )

- Europe

Mots clés ( Temporal )

- Daily , daily composite

Use limitation
No limitations

Use constraints
Copyright

Access constraints
Other restrictions

Other constraints
(d) the confidentiality of commercial or industrial information, where such confidentiality is provided for by national or Community law to protect a legitimate economic interest, including the public interest in maintaining statistical confidentiality and tax secrecy.

Association Type
Part of seamless database

Initiative Type
Project

Association Type
Source

Initiative Type
Platform

Association Type
Source

Initiative Type
Sensor

Spatial representation type
Grid

Distance
0.0089285714 http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/uom/gmxUom.xml#deg

Metadata language
eng

Character set
UTF8

Topic category

- Imagery base maps earth cover
- Biota
- Farming
- Environment

72.00 N
35.00 S
50.00 E
-11.00 W

Time period
1-day compositedaily2015-01-01T00:00:00Z2020-09-30T23:59:59Z

Reference system identifier
EPSG Geodetic Parameter Dataset / EPSG:4326

Reference system identifier
World Geodetic System / WGS84

Number of dimensions
2

Dimension name
Row

Dimension size
4144

Resolution
0.0089285714 deg

Dimension name
Column

Dimension size
6832

Resolution
0.0089285714 deg

Cell geometry
Area

Transformation parameter availability
false

Checkpoint Availability
true

Checkpoint Description
Upperleft corner tiepoint

Point in Pixel

- Center

Distribution format

- netCDF (4 )

  Specification
  Network Common Data Form

# Distributor

### Distributor

***VITO NV***
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*VITO website*

*Organisation website*

Fees
Free

Ordering instructions
Products can be downloaded online via HTTP (or FTP) or can be received through EUMETCast satellite reception in Europe and Africa. When ordering products from the online archive or subscribing to receive future products, users are informed via e-mail whenever the requested products are ready to be downloaded on the FTP server.

Units of distribution
Per product

OnLine resource
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1. Search, download and custom order products from Catalogue and Ordering services

Units of distribution
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Copernicus Global Land Service

2. Subscribe to receive future products via e-mail

Units of distribution
Per product

OnLine resource
Copernicus Global Land Service

3. Register to receive products via EUMETCast

Hierarchy level
Series

## Conformance result

Date ( Publication )
2010-12-01

Explanation
https://land.copernicus.eu/global/documents/ssm1km/v1/v
r

Pass
true

## Conformance result

Date ( Publication )
2010-04-26

Explanation
See the referenced specification

Pass
true

Statement
The SSM algorithm is originally developed at Vienna University of Technology (TU Wien) and first terrain geo-corrects and radiometrically calibrates the Level-1 Sentinel-1 C-band SAR backscatter values. Then, in the TUWien-Change-Detection model, dry and wet soil conditions are modelled from long term backscatter measurements and the backscatter is normalized to the common reference angle of 40 degrees. The relative surface soil moisture estimates range between 0 and 100 percent and are derived by linearly scaling the angle-normalized backscatter between the lowest/highest backscatter values at each individual location. The relative SSM is provided as percent saturation and can be further translated to absolute volumetric soil moisture by using porosity information.

**gmd:MD_Metadata**

File identifier
urn:cgls:global:ssm_v1_1km _XML

Metadata language
English

Character set
UTF8

Hierarchy level
Series

Date stamp
2020-03-06T16:41:42

Metadata standard name
ISO19115

Metadata standard version
2003/Cor.1:2006

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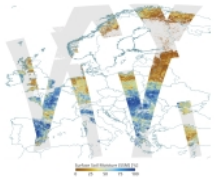
**Aperçus**



Surface Soil Moisture, 1km resolution, over Europe

**Fourni par**

**Partager**

**Ressources associées**

Not available