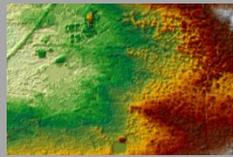# Euro-Maps 3D Product Description

Products	Euro-Maps 3D DSM	Euro-Maps 3D DTM	Euro-Maps 3D for Ortho

Product Specifications

|	DSM	DTM	DEM
Type	DSM	DTM	DEM
Post Spacing	5 m	5 m	10 m
Absolute Horizontal Accuracy	CE90 5-10 m	CE90 5-10 m	CE90 5-10 m
Absolute Vertical Accuracy	LE90 5-10 m	The accuracy depends on the specific area of interest	LE90 5-10 m
Relative Vertical Accuracy	LE90 < 3 m	LE90 < 3 m	LE90 < 3 m
Satellite Data	IRS-P5 Cartosat-1 PAN-A and PAN-F in-flight stereo data		
Spatial Reference System	DD, UTM or other projections on WGS84		
Height Reference System	EGM96, EGM2008 or WGS84		
Format	GeoTIFF, 16-bit signed integer		
Water Bodies	Allocation of constant heights for standing waters bigger than 2500 m² and hydrological gradient for flowing waters wider than 50 m for more than 1 km		Major water bodies are flattened
File Naming	Individual files of the product are composed in the following way: <Product-family>_<Internal-ID>_<QC-date>_<Area>_<Layer-name>.<Extension> e.g. em3d_094638_20191213_020E045NPC_dsm.tif For detailed information on naming conventions and data formats please see here.		
Tiling	0.5° x 0.5°		

Additional Layers

	DSM	DTM	for Ortho
Accuracy Vertical Layer	✓	✓	x
Mask Layer	x	✓	x
Number Layer	✓	✓	x
Ortho Layer, Pixel Size	optional, 2.5 m	optional, 2.5 m	✓, 2.5 m
Quality Layer	✓	✓	x
Source Layer	✓	✓	x

GAF AG
an e-GEOS (ASI / Telespazio) Company

Product Layers
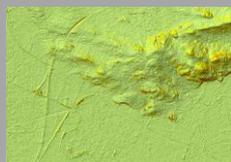
_acv.tif	The **accuracy vertical layer** contains a value corresponding to the absolute vertical accuracy for each quality controlled height value.
	Format: 8-bit unsigned integer

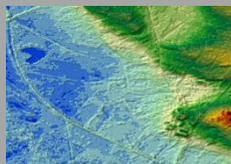| Value	Description
0	may not meet the quality described in the product specifications
5	5 m for slopes < 20 %
7	7 m for slopes 20 % - 40 %
10	10 m for slopes > 40 %
255	NoData
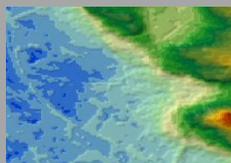
_dem.tif	The **digital elevation model layer** contains the height values as a geocoded raster file. This layer consists of a good approximation to a DTM for urban areas and a DSM elsewhere.
	Format: 16-bit signed integer

Value	Description
n	height above reference system in m
-32767	NoData

_dsm.tif	The **digital surface model layer** contains the height values as a geocoded raster file.
	Format: 16-bit signed integer

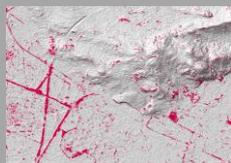| Value	Description
n	height above reference system in m
-32767	NoData

_dtm.tif	The **digital terrain model layer** contains the height values as a geocoded raster file. This layer is derived from a DSM and shows the terrain heights (vegetation and buildings removed). With the DTM, a mask layer is also provided to be able to trace the DSM to DTM conversion. For the DTM product the availability and accuracy depends on the specific area of interest.
	Format: 16-bit signed integer

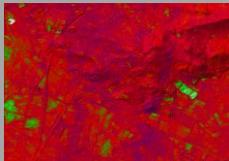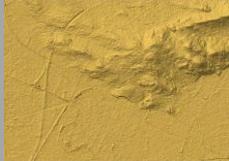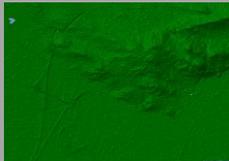| Value	Description
n	height above reference system in m
-32767	NoData

_msk.tif	The **mask layer** is set to 1 for each height value that was modified during the DSM to DTM conversion.
	Format: 8-bit unsigned integer

Value	Description
0	not modified
1	modified
255	NoData

_num.tif	The **number layer** contains the information on how many image pairs the matching was successful and therefore from how many matches the height value was derived.	
	Format: 8-bit unsigned integer	
	Value	**Description**
	0	height value not derived from IRS-P5 Cartosat-1 stereo pairs
	1-n	height value derived from 1 or more overlapping IRS-P5 Cartosat-1 stereo pairs
	255	NoData

_ortho.tif	The **ortho layer** contains TOA reflectances of the near-nadir image, orthorectified with the unedited DSM.	
	Format: 16-bit unsigned integer	
	Value	**Description**
	0	NoData
	1-n	TOA reflectance value scaled with factor 10,000

_qc.tif	The **quality layer** is set to 1 for each height value which was derived from IRS-P5 Cartosat-1 data and was rated by the quality control procedures of the production process to meet or exceed the quality described in the product specifications above.	
	Format: 8-bit unsigned integer	
	Value	**Description**
	0	may not meet the quality described in the product specifications
	1	meets or exceeds the quality described in the product specifications
	255	NoData

_src.tif	The **source layer** contains information on the source of each pixel.	
	Format: 8-bit unsigned integer	
	Value	**Description**
	0	NoData
	1	derived from IRS-P5 Cartosat-1 stereo data
	2	filled with SRTM
	3-9	reserved for other fill-DSMs
	10	edited manually and derived from surrounding values
	11	detected as water body and edited accordingly
	12-255	reserved for future use