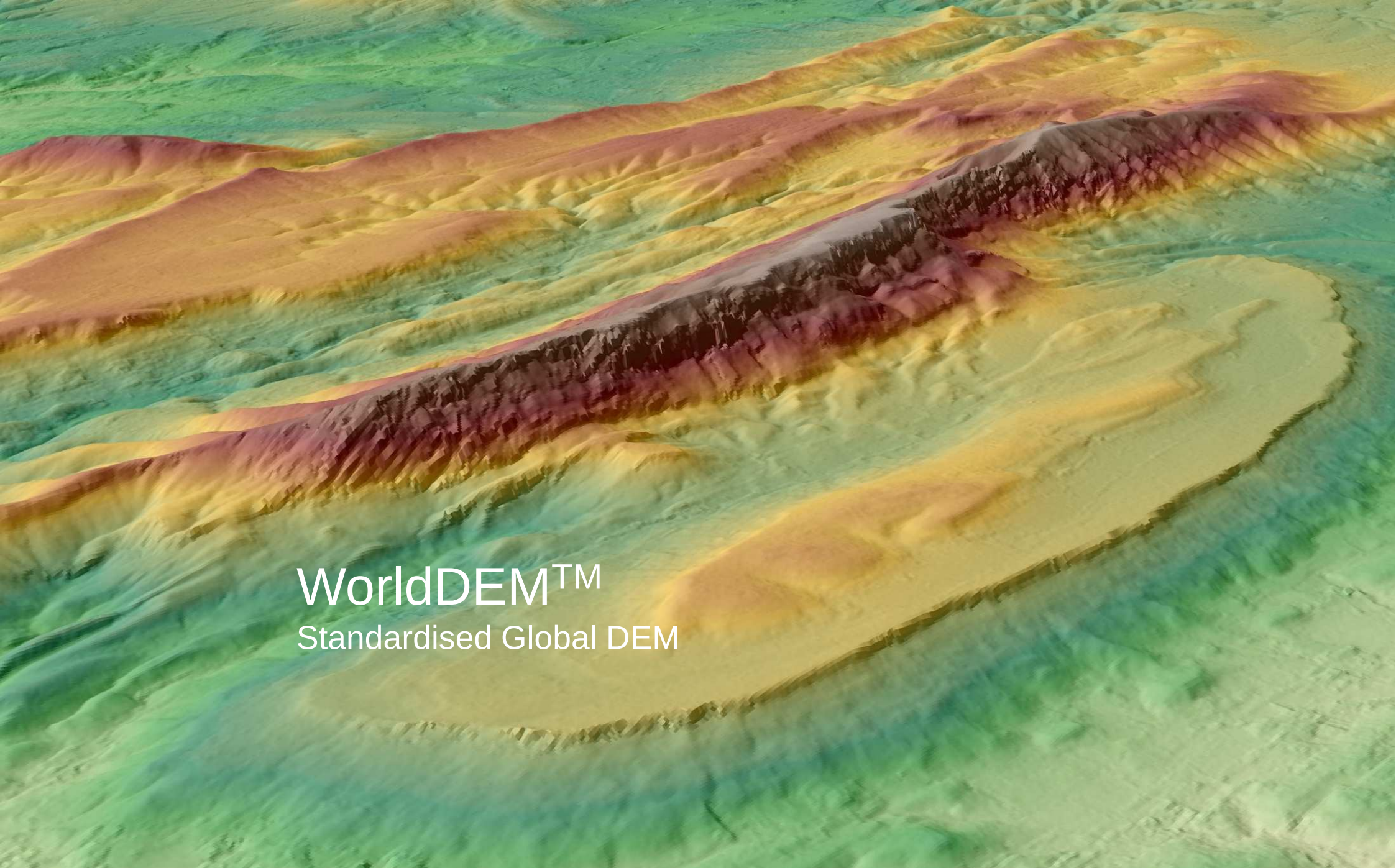




WorldDEM™

Reaching New Heights

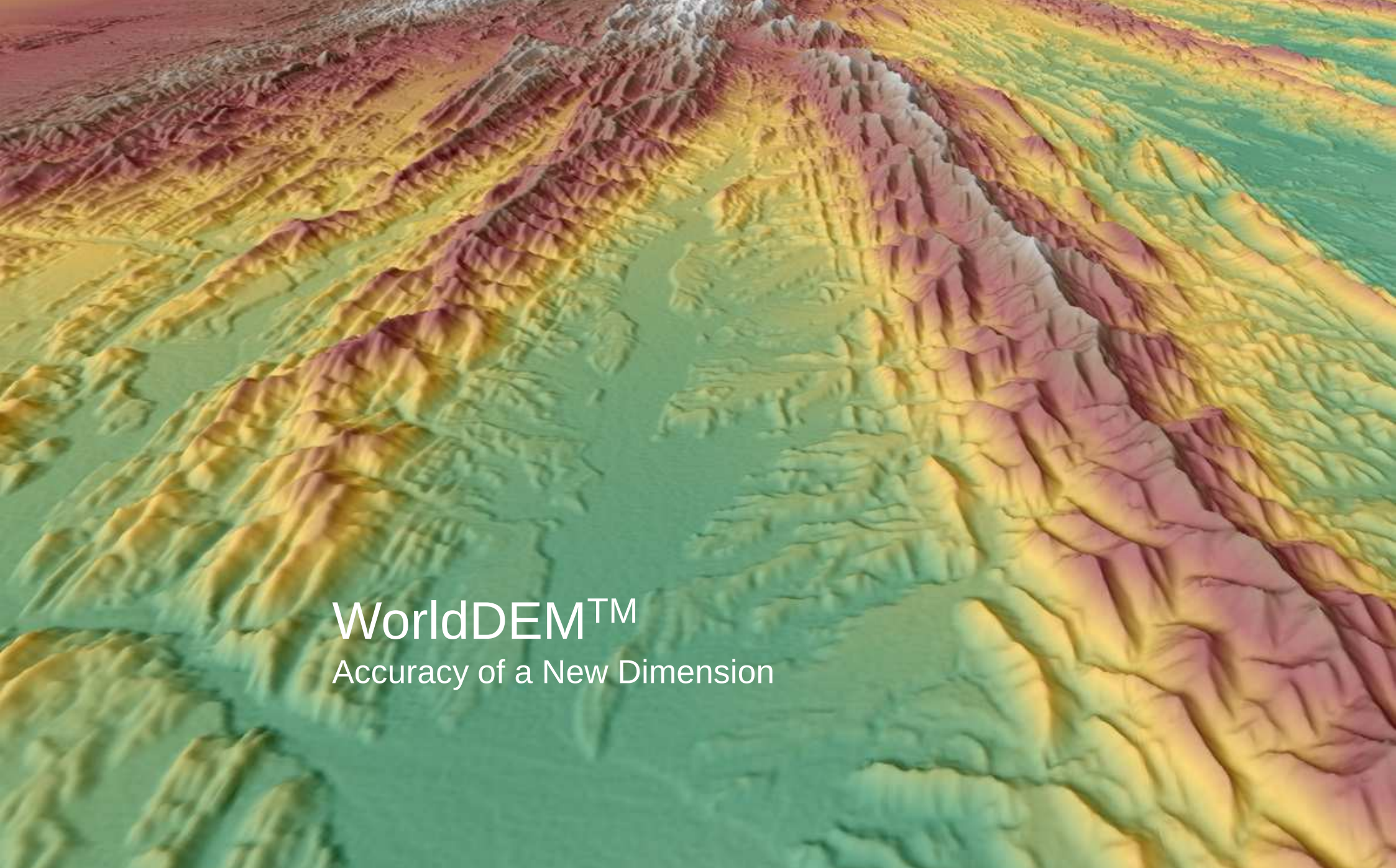
March 2015 / 11.00



WorldDEM™

Standardised Global DEM

WorldDEM™
Unprecedented Quality



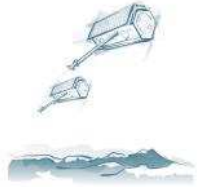
WorldDEM™

Accuracy of a New Dimension

A global Digital Elevation Model (DEM) visualization showing topographic relief across the world. The colors range from green for low elevations to yellow, orange, and red for higher elevations, with the highest peaks in the Himalayas and Andes appearing in dark red/purple. The text "WorldDEM™" and "Benefits & Applications" is overlaid in white on the central part of the map.

WorldDEM™

Benefits & Applications



WorldDEM™ Global Coverage - Unprecedented Quality - Unique Accuracy

Coverage

A standardised DEM for any spot on Earth at the same quality

Quality

Allows you to close gaps in areas where no adequate DEM exists to date and extend to areas missing so far (cf. SRTM) with high accuracy

Accuracy

Improve the performance of today's globally operating navigation systems and applications

Availability

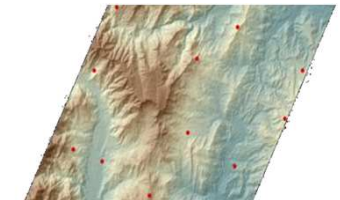
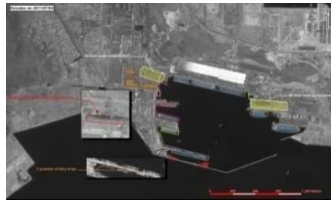
Offers you easy and instant access to DSM basic due to an automatic order process and the global dataset being available, ensuring immediate delivery

The unique and unrivaled combination of **Coverage, Quality, Accuracy, and Availability**, setting a new standard in global elevation modeling



What can the WorldDEM™ be used for?

- National and thematic mapping
- Air and surface based system navigation
- Airport landing approach mapping (ICAO)
- Air Traffic Management (ATM)
- Engineering and infrastructure design
- Flight planning in 3D and simulation
- Improved crisis intervention planning
- Insolation and surface runoff mapping
- Intelligent Transportation Systems (ITS)
- Management of oil and gas fields
- Mission planning
- Mobile telecommunications engineering
- Orthorectification of aerial or satellite imagery
- Modeling water flow or mass movement
- 3D visualisation
- Terrain and target analysis, line-of-sight analysis





Detailed and Precise Terrain Knowledge for Military Operations



WorldDEM™ is the perfect foundation layer for all intelligence data and products

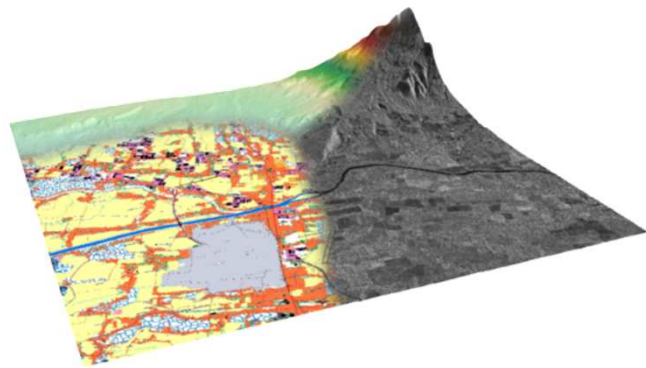
- Aviation security
- Aircraft and cruise missile mission planning and navigation (low-altitude flight, line-of-sight analysis)
- Landing approach planning
- Training and simulation operations (flight simulation)
- Accurate geo-referenced base for “Intelligence Dossier”
- 3D picture of terrain
- Planning and assessment of operations in the field: threat evaluation, target detection and location, damage assessment
- Accurate and uniform geospatial reference data for headquarters and joint forces

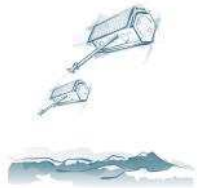


Accurate Height Information for Topographic Mapping

WorldDEM™ provides standardised homogenous seamless large-area coverage

- Multi-scale mapping: topographic maps 1:50,000 / 1:100,000
- Orthorectification of any other imagery (VHR optical data)
- Maps as basis for prevention measures (e.g. flood modelling) or post-event activities (e.g. flood maps, damage assessment maps)
- Standardised quality control and validation on the basis of a consistent dataset like WorldDEM™

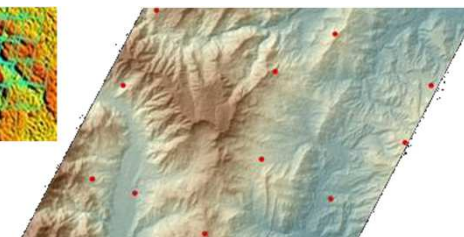
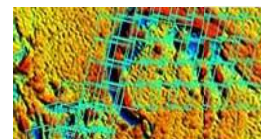




Worldwide Elevation Information for Geological Prospection

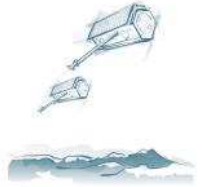
WorldDEM™ is a homogeneous global DEM for any location - no matter how remote or difficult

- Feasibility Studies
 - Scouting
- Exploration
 - Scouting
 - Input into geophysical processing / modelling
 - Orthorectification of multi-source geodata
 - Integration into topographic mapping
- Development
 - Airport planning (terrain, flight approaches)
 - Infrastructure planning
 - Roads, supply units, accommodation
 - Pipelines
 - Oil- and gas processing facilities
- Preparation of seismic measurements



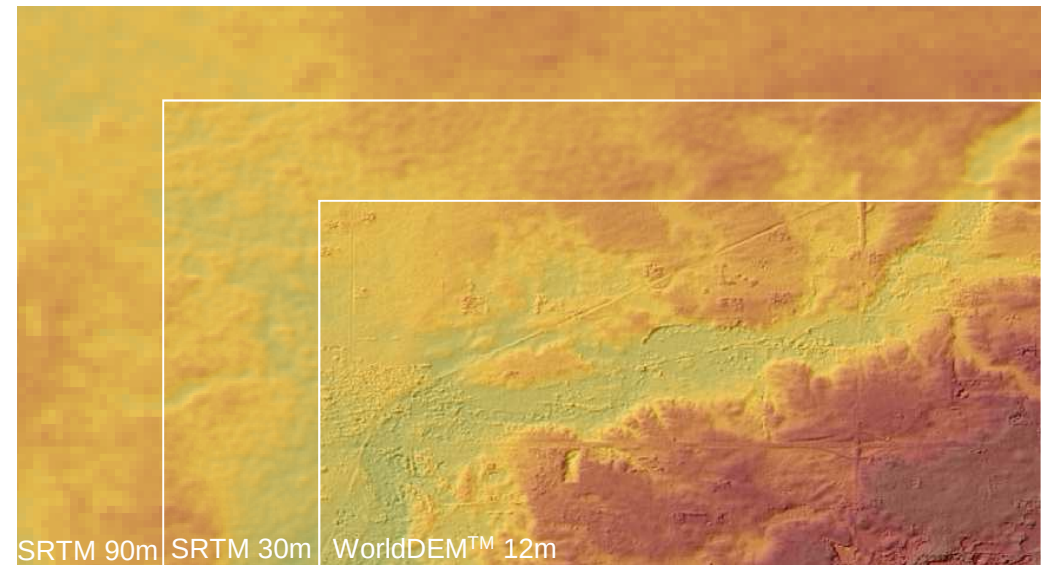


WorldDEM™ Offering



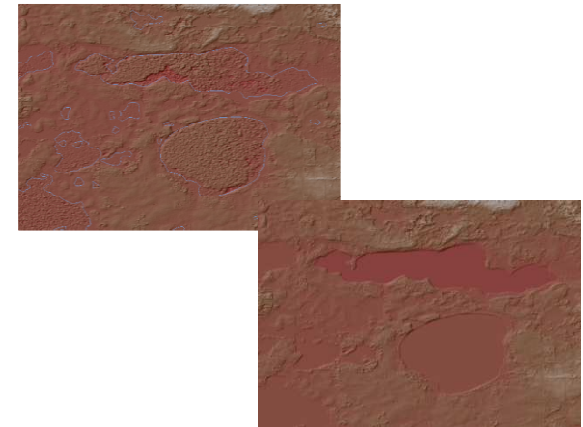
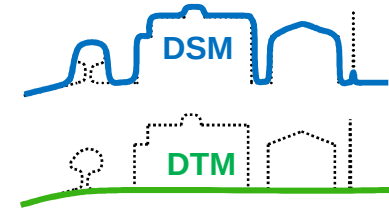
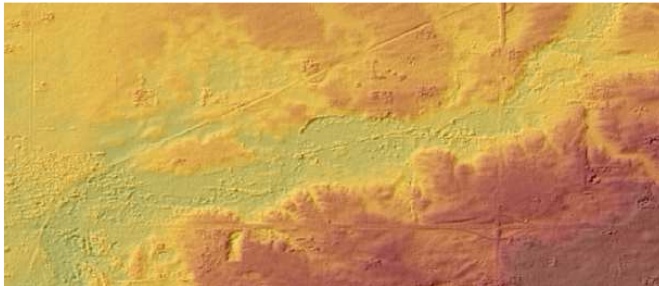
WorldDEM™ - Reaching New Heights

- First worldwide available DEM product at HRTE3 level
- Homogeneous, seamless DEM covering the entire Earth's land mass (150 Mio km² pole-to-pole)
 - Data acquisition within 3 years only (one unique source)
 - Acquired by TerraSAR-X and TanDEM-X flying in a very close and precise formation
 - Based on radar interferometric technology
- WorldDEM™ will be available commercially from 2014
- WorldDEM™ will be part of the GEO Elevation product suite



WorldDEM™ Product Line

- **Digital Surface Model (DSM)** representing the surface of earth including heights of buildings and other man-made objects, trees, forests and other vegetation
 - **WorldDEM_{core}** – incl. spikes, wells, voids
 - **WorldDEM** – editing of terrain features & water bodies
- **Digital Terrain Model (DTM)** represents the elevation of the bare earth, man-made objects and vegetation are removed





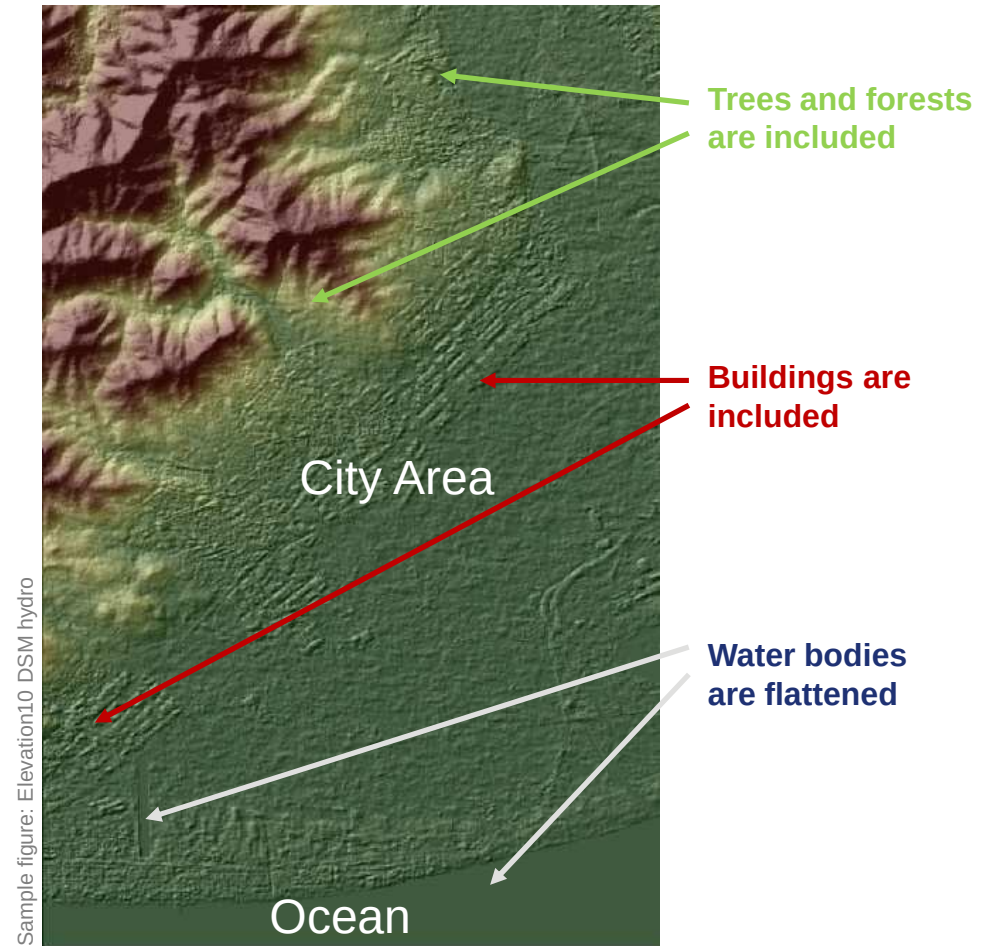
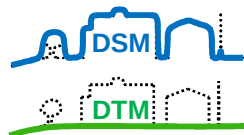
WorldDEM™

Digital Surface Model includes heights of all objects (natural and man-made)

Extraction of water body features derived from radar image

Editing steps and rules:

- **Lakes & reservoirs** are set to a single elevation
 - Water bodies: width: >50m, length: >150m
- **Rivers & canals** are flattened with monotonic flow
 - Water bodies: width: >50m, length: >300m
- **Ocean** elevation is set to 0 m
- Coastal infrastructure features and bridges are removed



WorldDEM™ DTM

Digital Terrain Model represents bare earth

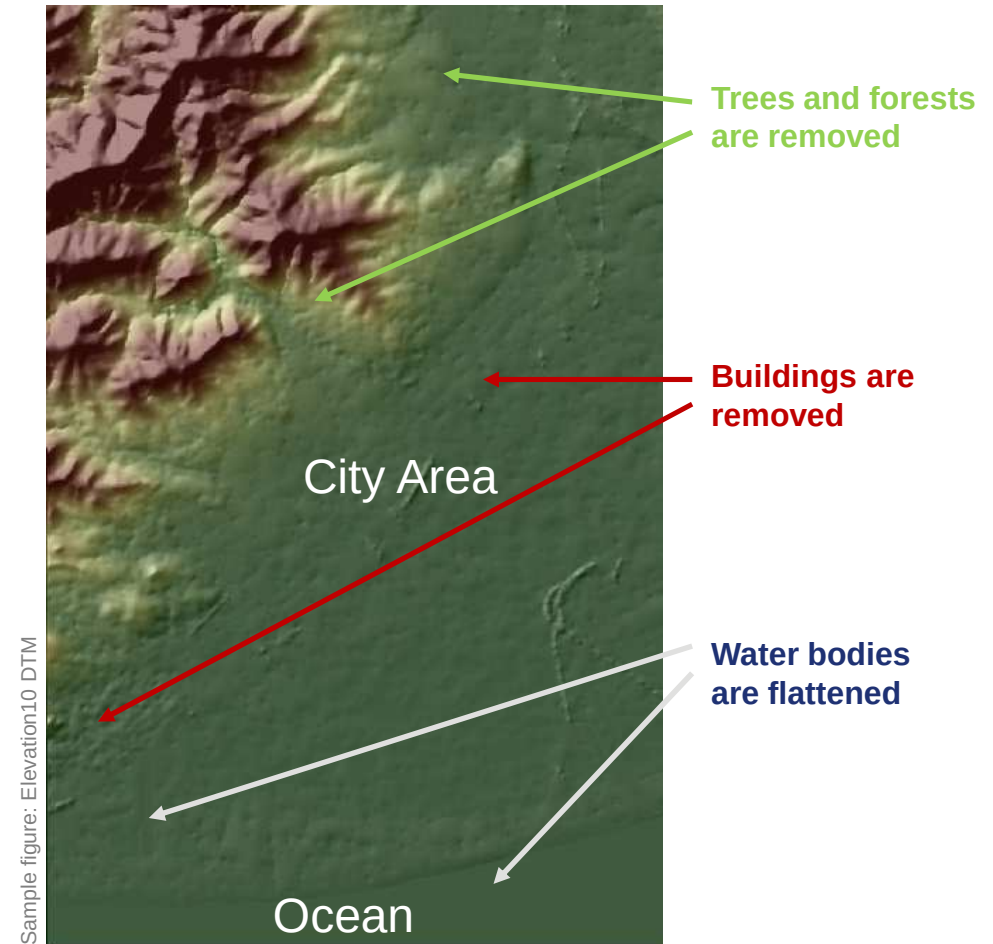
Editing steps and rules:

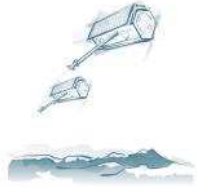
Based on radar image and DSM hydro

- Trees & forests are removed
- Man-made objects (e.g. buildings) are removed

Procedure: measurement of object's height

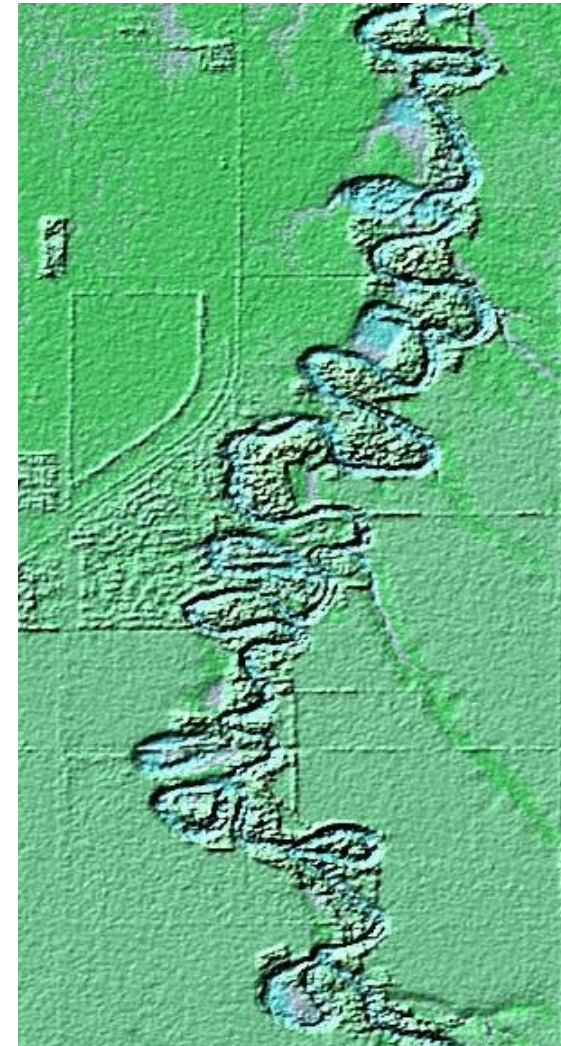
- Detailed terrain information
- Revealing small-scale terrain structures covered by vegetation





WorldDEM™ Specifications

Products		DSM
Vertical Accuracy	Abs.	<4m (LE90)
	Rel.	<2m (slope ≤20%) (LE90) <4m (slope >20%) (LE90)
Horizontal Accuracy	Abs.	<10m (CE90)
Grid Spacing		Latitude: 0.4" (~ 12m) Longitude: depending on Latitude (~12m)
File Format		GeoTIFF
Data Type		32-bit floating
Vertical Unit		Meter
Projection Information		Geographic Coordinates
Coordinate Reference System		• Horizontal reference datum: WGS84 • Vertical reference datum: EGM2008
Auxiliary Metadata		XML-Format, ISO 19115 compliant
Quality Layers		Data Acquisition Mask, Interpolation Mask, Filling Mask, Editing Mask, Water Body Mask
Image Mosaic Layer		Amplitude Mosaic Image





WorldDEM™

Product Availability

<http://www.geo-airbusds.com/worlddem-db>