



TanDEM-X

The Commercial Offer

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Infoterra GmbH

Together pioneering excellence

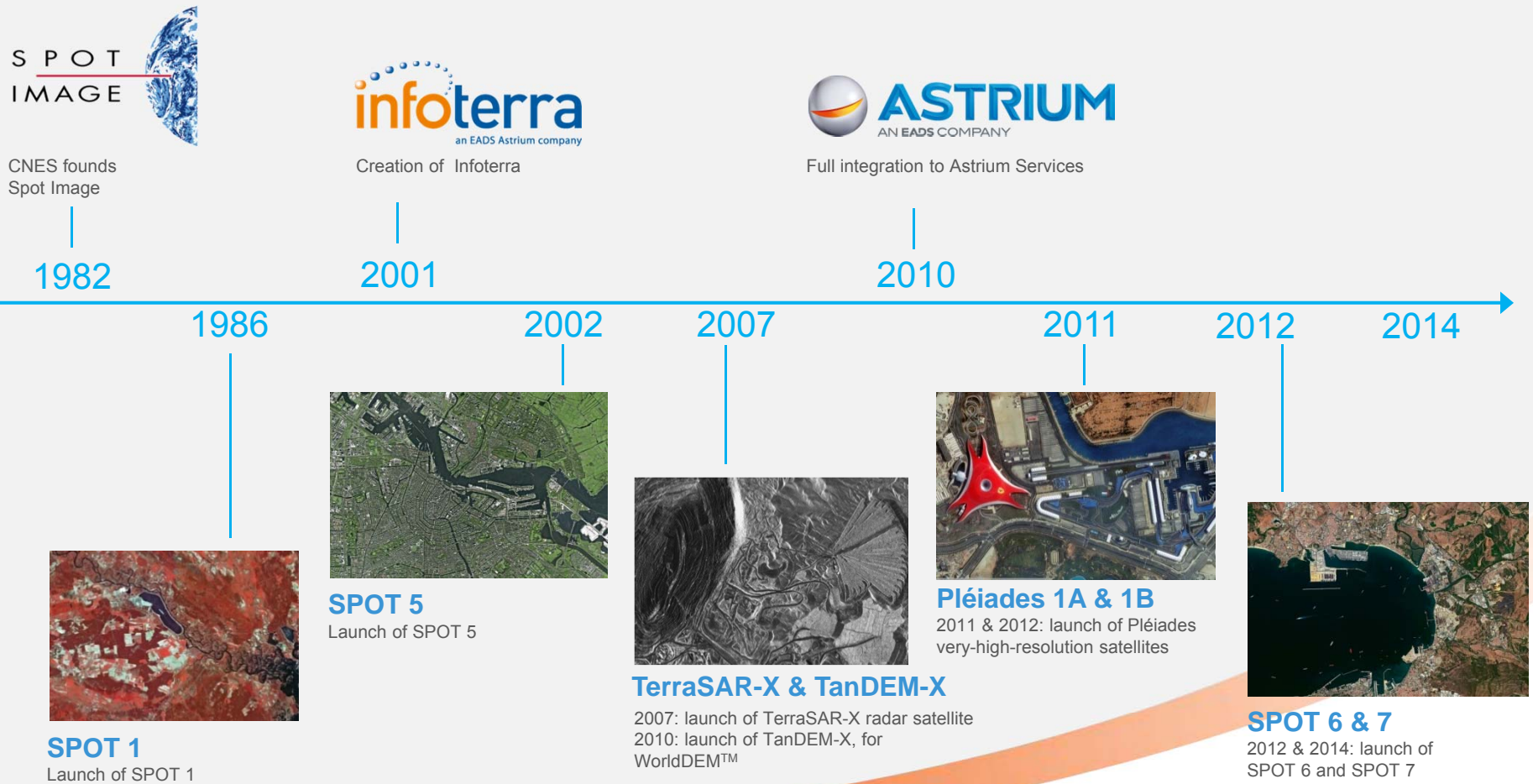


Content

- Who are we?
- Why a commercial Offer?
- What is the commercial Offer?
- What can it be used for?

Who we are

A legacy of Expertise



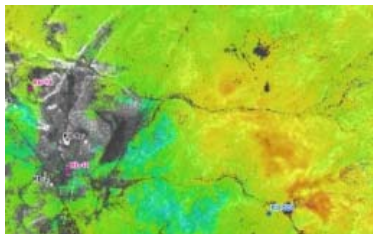
Products & Services to Address Your Needs

Optical Imagery



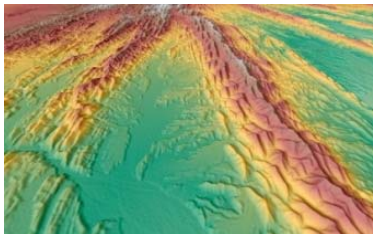
- Pléiades
- SPOT 6/7
- SPOT 5
- DEIMOS-1
- FORMOSAT-2

Radar Imagery



- TerraSAR-X
- TanDEM-X
- PAZ

Reference Layers



- GEO Elevation
- WorldDEM
- SPOTMaps
- PléiadesMaps
- Airport Layer

Software



- I4D
- Pixel & Street Factory
- National Spatial Data Infrastructure (NSDI)
- SAFEcommand

Monitoring Services



- GO Monitor
- Global Seeps
- GRAIN
- Oceanway

Easy Access to Data



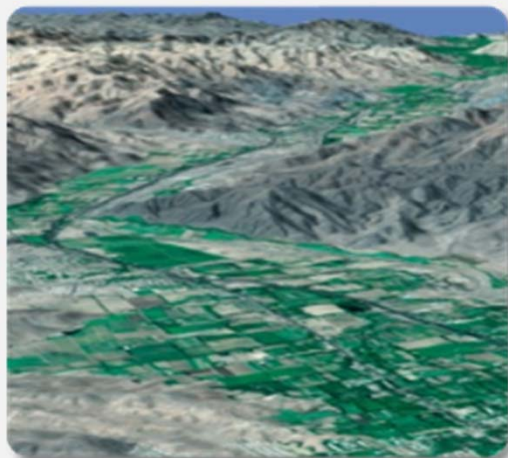
- Cloud Services
- GeoStore
- Direct Reception Services

A wide range of products and services to offer you the right solution for your needs and make your daily work easier

GEO Elevation Suite

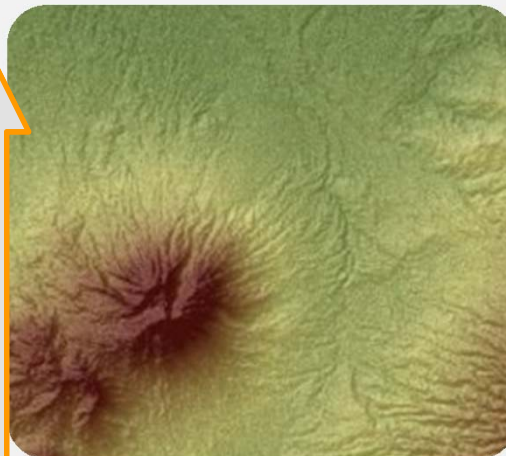
The right Elevation Model for your needs

Elevation30



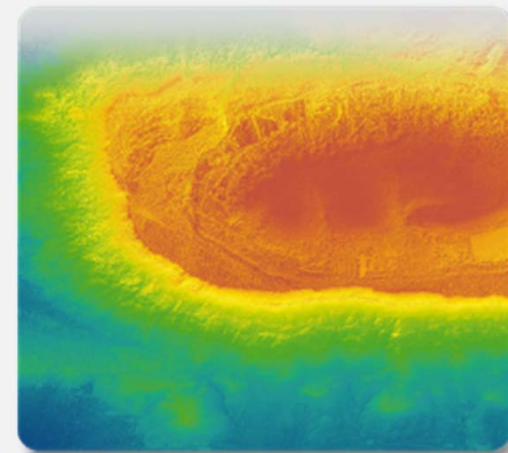
Unique worldwide 3D geographic reference database for all global coverage needs

Elevation10



Regional 10m elevation models everywhere in the world whatever the relief and weather conditions

Elevation4 and 1



High precision DEM generated from Pléiades stereo or tri-stereo data.

WorldDEM™

A digital elevation model (DEM) of a mountain range, likely the Alps, showing topographic relief with colors ranging from green (low elevation) to purple (high elevation). The text "WorldDEM™" and "Why a commercial offer?" is overlaid on the image.

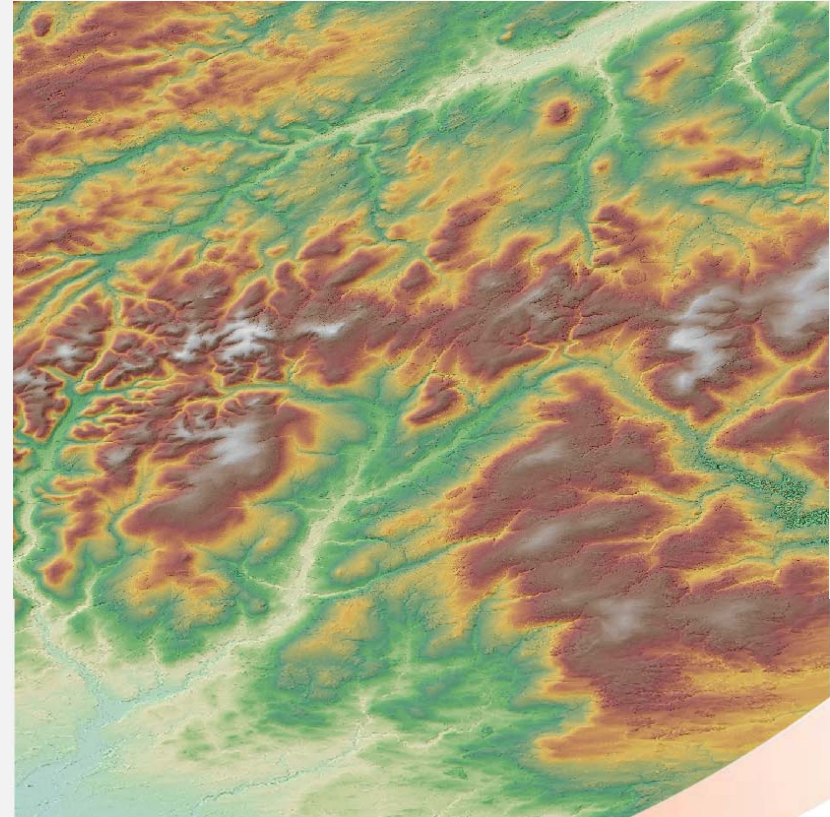
WorldDEM™

Why a commercial offer?

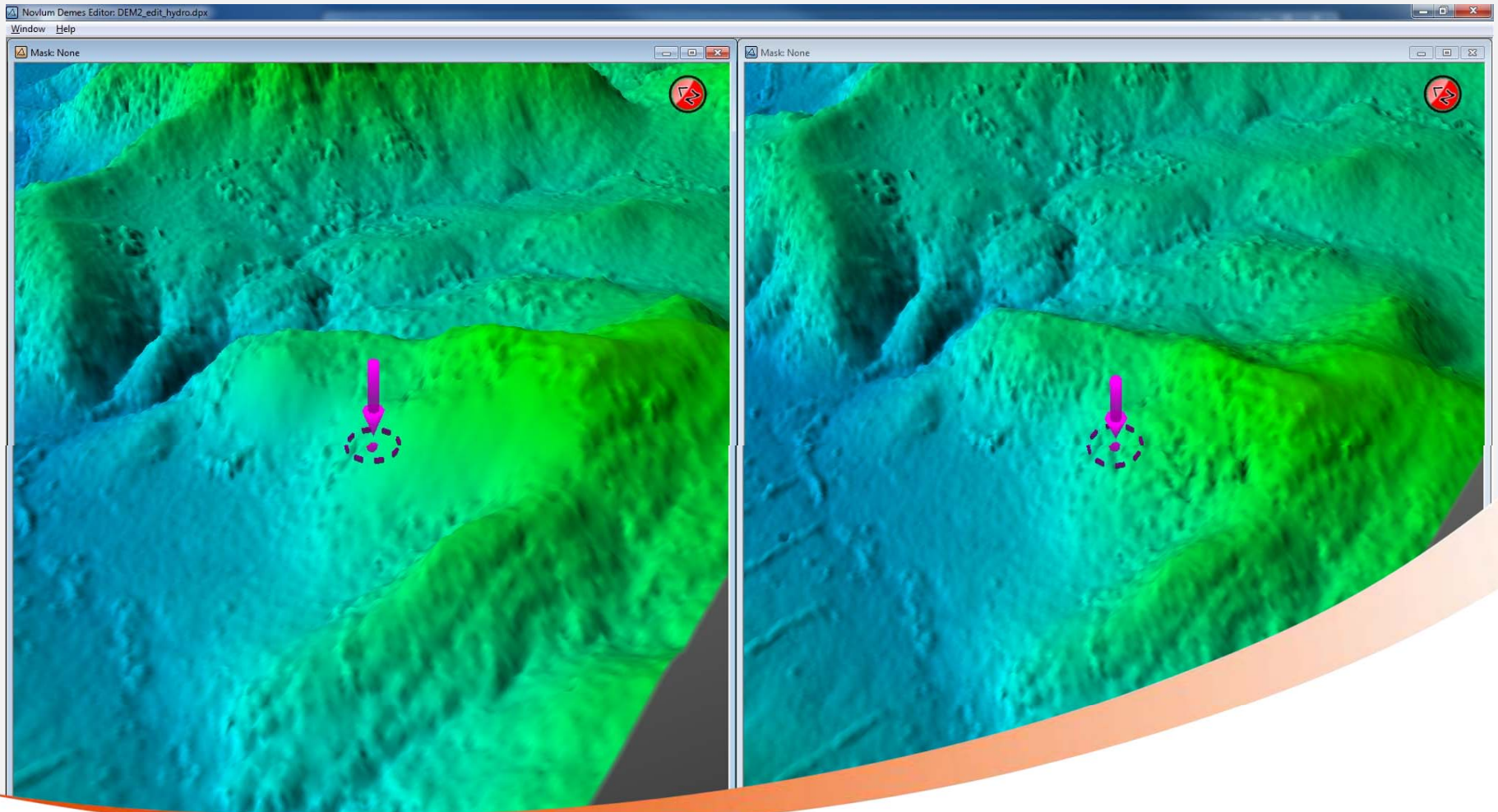
From TanDEM-DEM to WorldDEM™

Editing Steps performed:

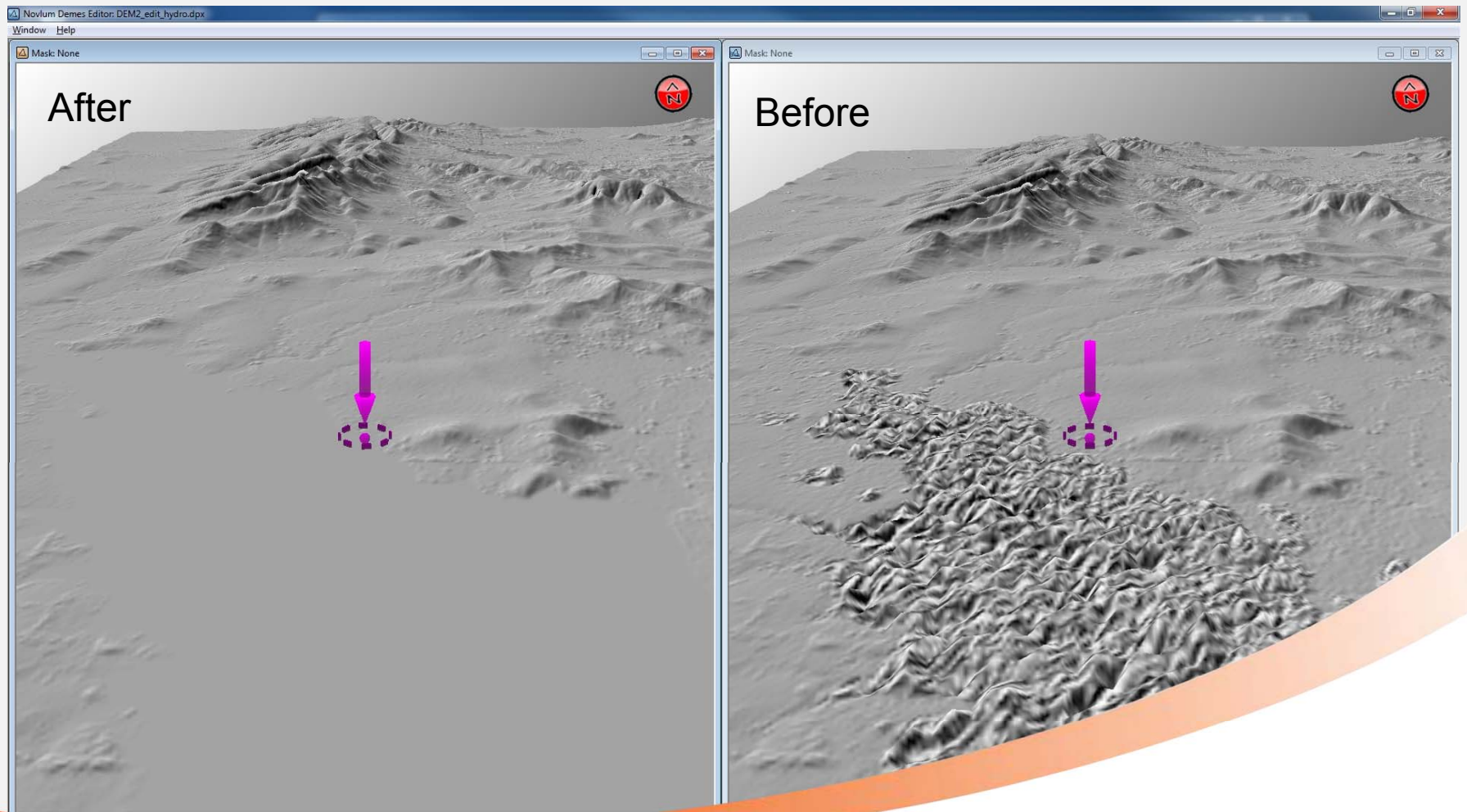
- Removal of **radar-typical artefacts** (single pixel: “spikes” and “wells”)
- Interpolation of **small voids** (smaller or equal 8 pixels)
- Extraction of **water body features** derived from radar image following defined rules
 - Water covered areas have a specific “rough” signature in the TanDEM-DEM
 - This is not, what commercial clients expect and require



Example: Terrain Editing with Delta Surface-Fill

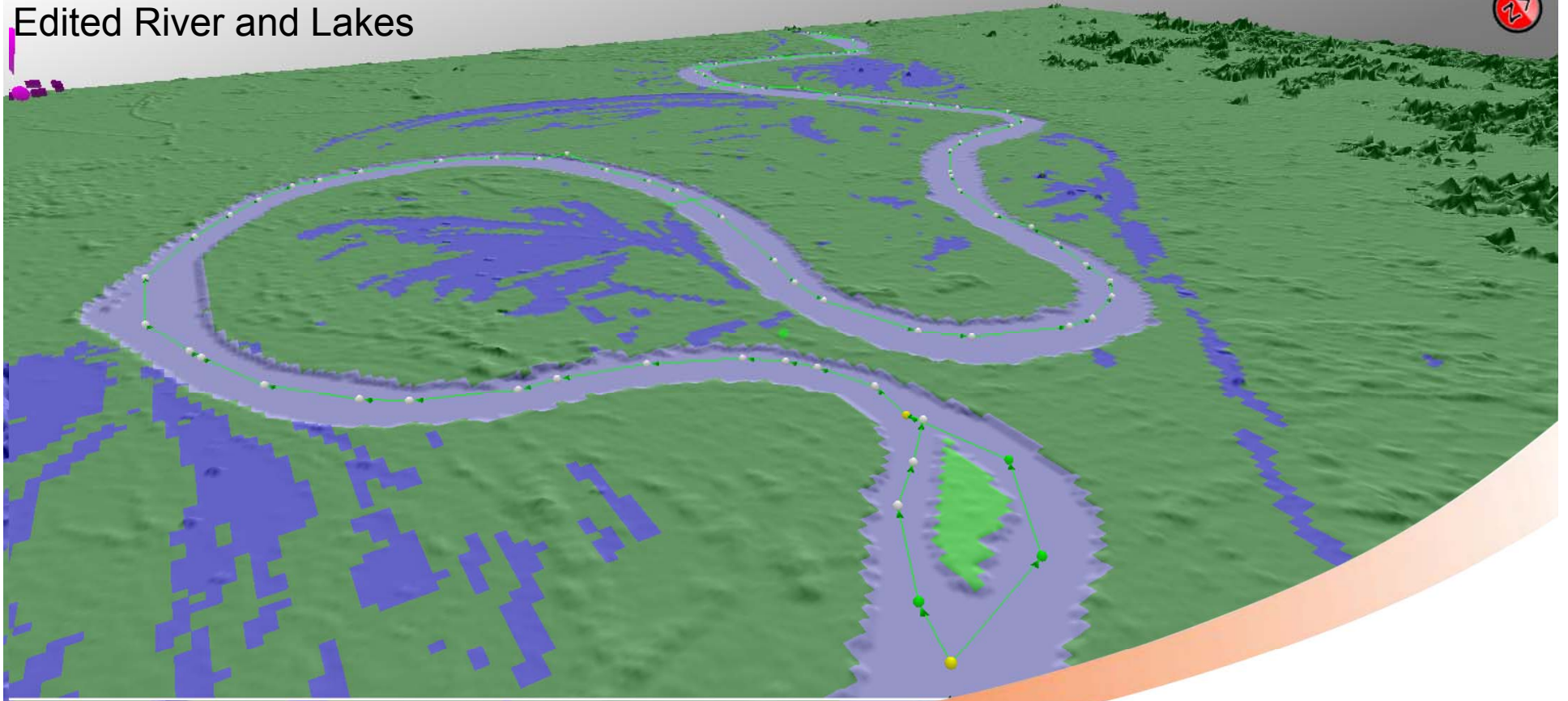


Example: Lake Editing



Example: River Editing

Edited River and Lakes



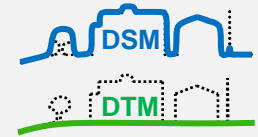
A topographic map of a mountainous region, likely the Alps, rendered in a color gradient from green (low elevation) to white (high elevation). The map shows detailed terrain features like ridges and valleys. The text "WorldDEM™ Offering" is overlaid in white, with a blue horizontal line below it.

WorldDEM™ Offering

5th TerraSAR-X / 4th TanDEM-X Science Team Meeting
Oberpfaffenhofen, June 2013



WorldDEM™ DSM basic



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

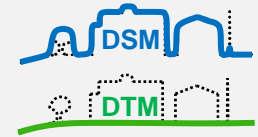
Editing steps and rules:

- Removal of radar-typical artefacts (single pixel: “spikes” and “wells”)
- Interpolation of small voids (smaller or equal 8 pixels)



Sample figure: Elevation10 DSM basic

WorldDEM™ DSM hydro

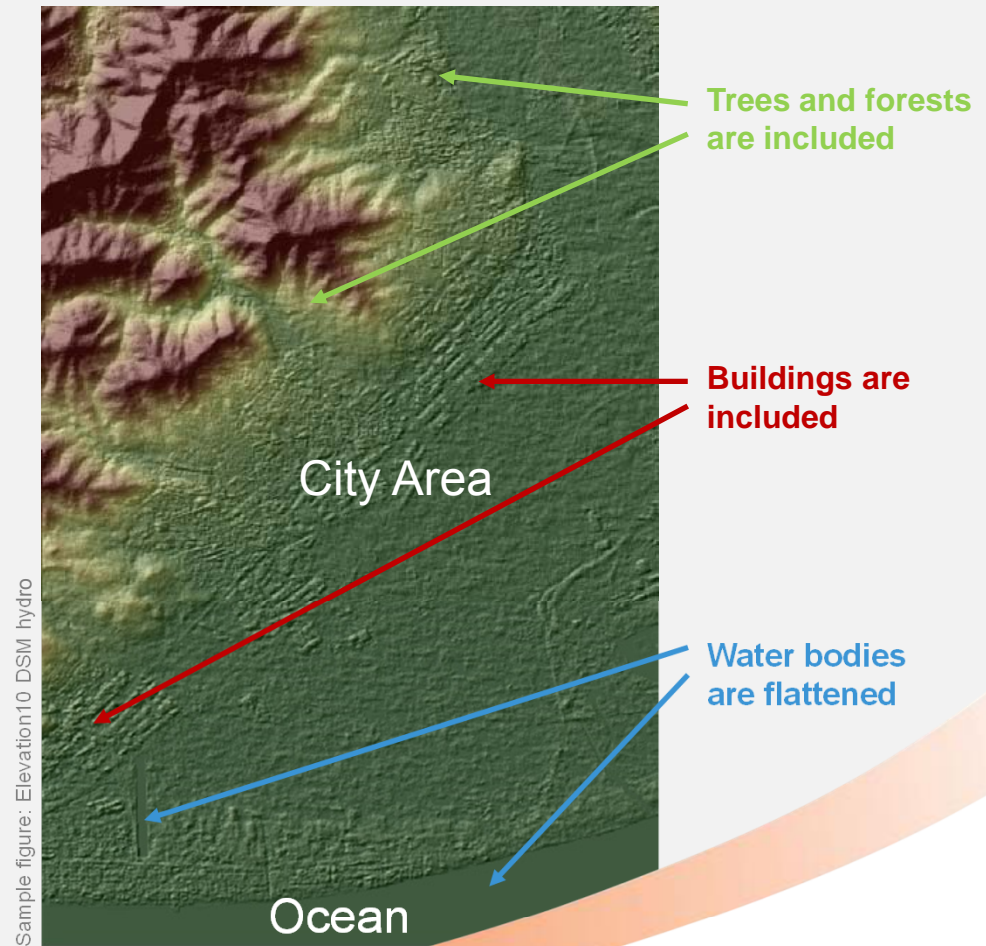


Digital Surface Model includes heights of all objects (natural and man-made)

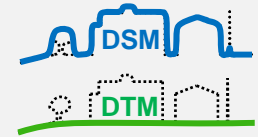
Extraction of **water body features** derived from radar image

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 0m
- Coastal infrastructure features and bridges are removed



WorldDEM™ DTM



Digital Terrain Model represents bare earth

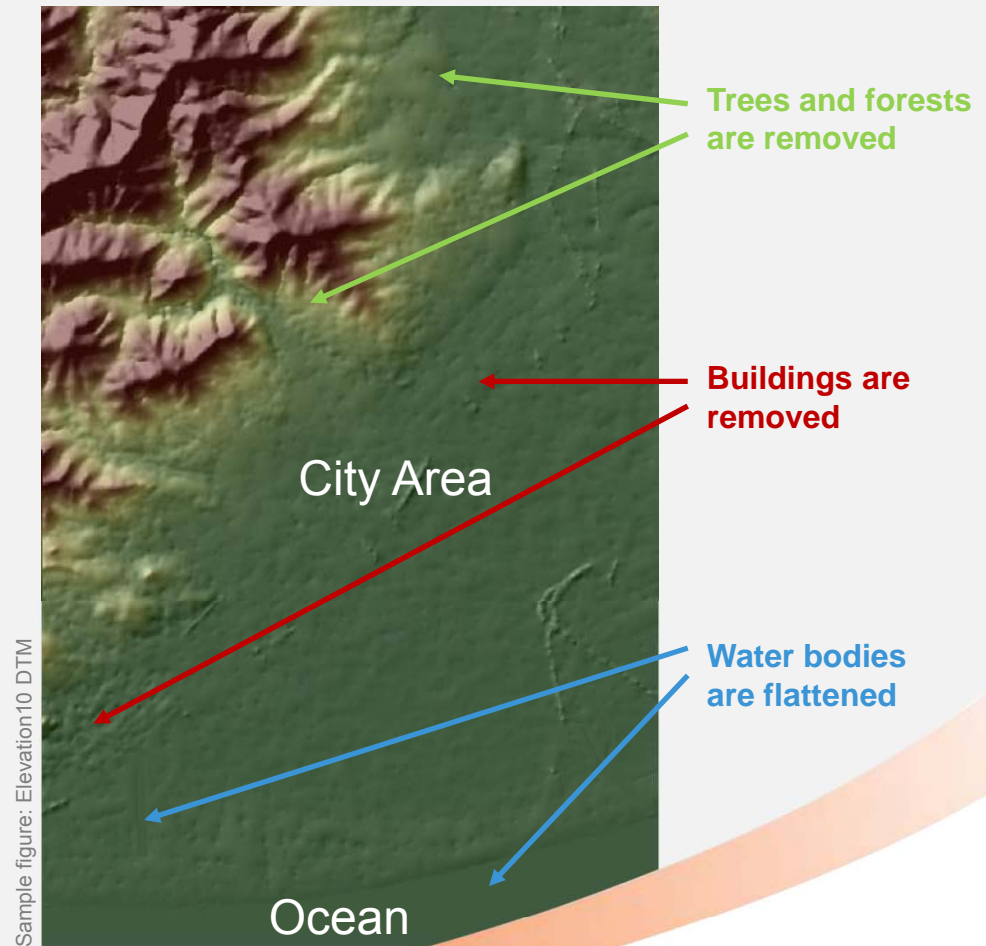
Editing steps and rules:

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



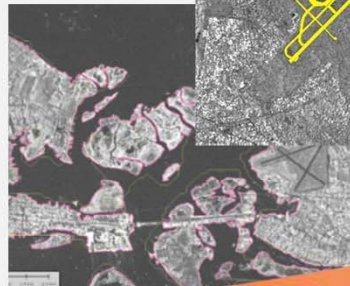
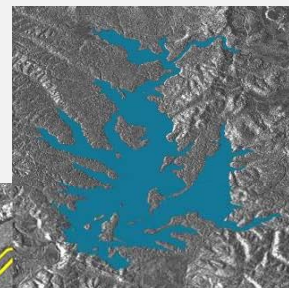
WorldDEM™ Specifications

Products	DSM basic, DSM hydro, DTM	
Vertical Accuracy	Abs.	<10m (LE90)
	Rel.	<2m (slope $\leq 20\%$) (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; UTM Other projections on customer's request	
Coordinate Reference System	<ul style="list-style-type: none"> • Horizontal reference datum: WGS84 • Vertical reference datum: EGM2008 Other reference systems on customer's request	
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	

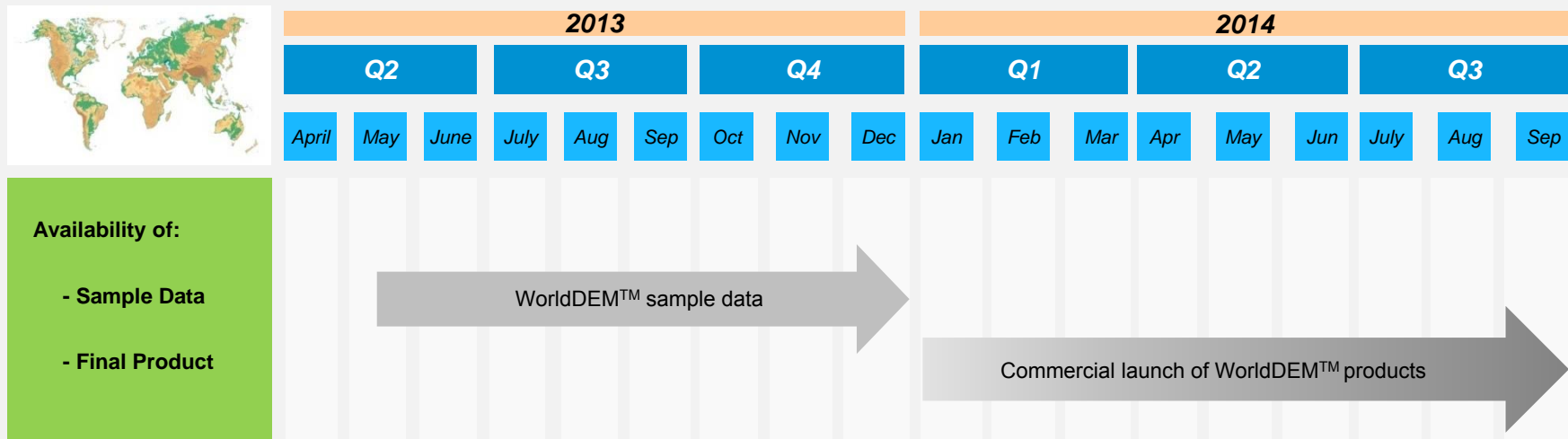


WorldDEM™ Product Ideas

- WorldDEM30 (DTED-2)
- Orthorectification Service
Ortho Online On-demand (O³)
- Derived Products
 - Global Ocean Shoreline
 - Waterbody Map
 - Global Urban Footprint
 - Global Airport / Harbour Map



WorldDEM™ Product Availability





WorldDEM™

What can it be used for?

5th TerraSAR-X / 4th TanDEM-X Science Team Meeting
Oberpfaffenhofen, June 2013



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**

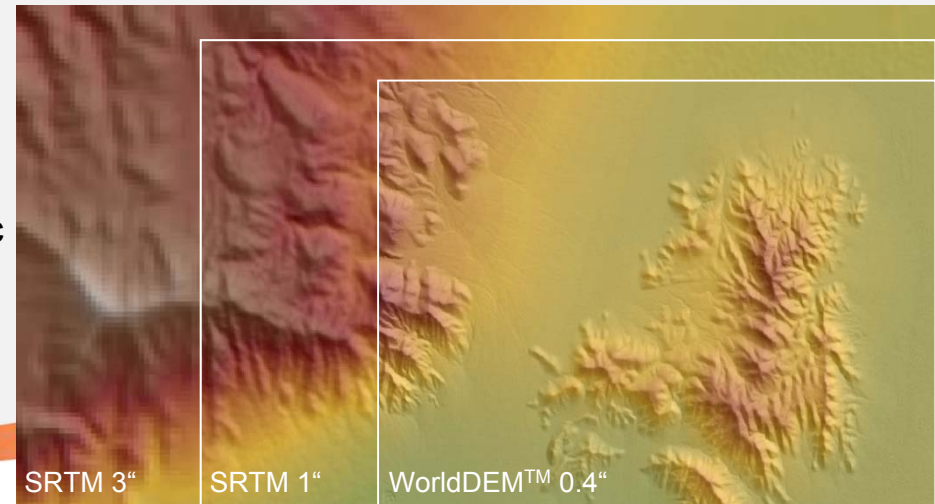
■ Accuracy

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?

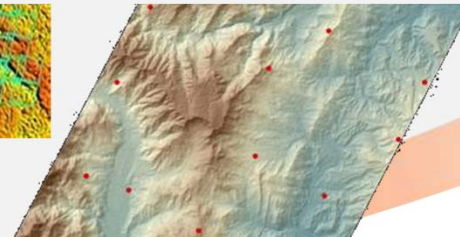
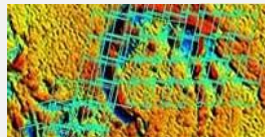
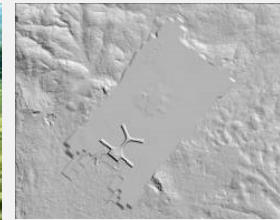
- National and thematic mapping
- Air and surface based system navigation
- Airport landing approach mapping (ICAO)
- Air Traffic Management (ATM)
- Engineering and infrastructure design
- Flight planning in 3D and simulation
- Improved crisis intervention planning
- Insolation and surface runoff mapping
- 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



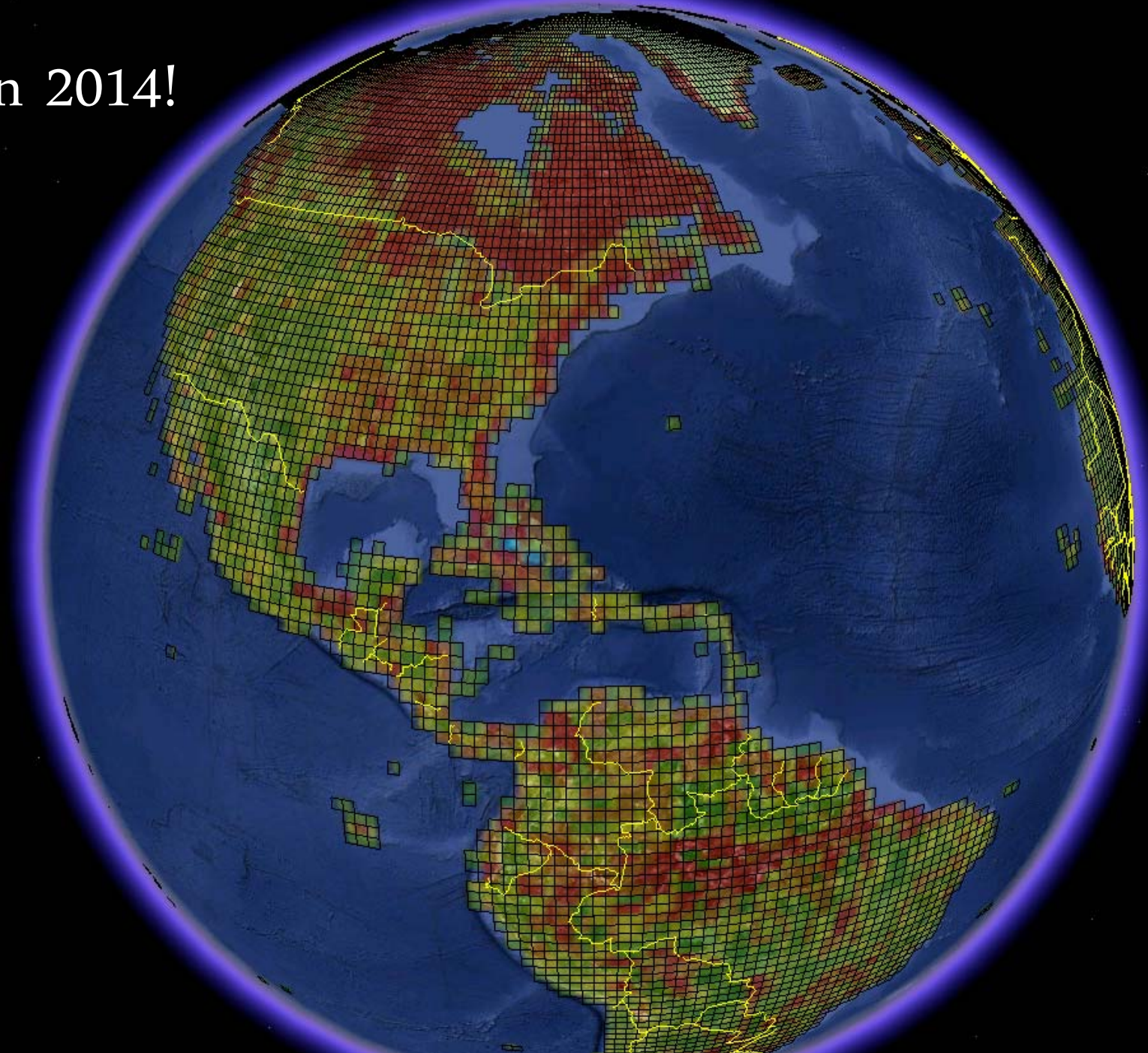
Worldwide Elevation Information for Geological Prospection

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



Coming in 2014!



Contact

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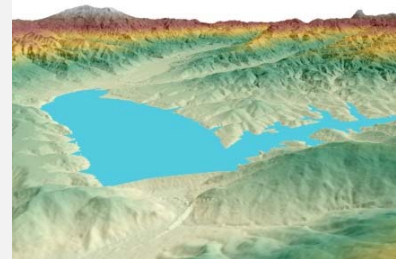
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**Pre-Sales campaign samples available
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