

# Second workshop on International Coordination for Spaceborne SAR

28–30 September 2022 | ESA–ESRIN | Frascati (Rome), Italy



## SAR ACTIVITIES DLR - SPACE AGENCY

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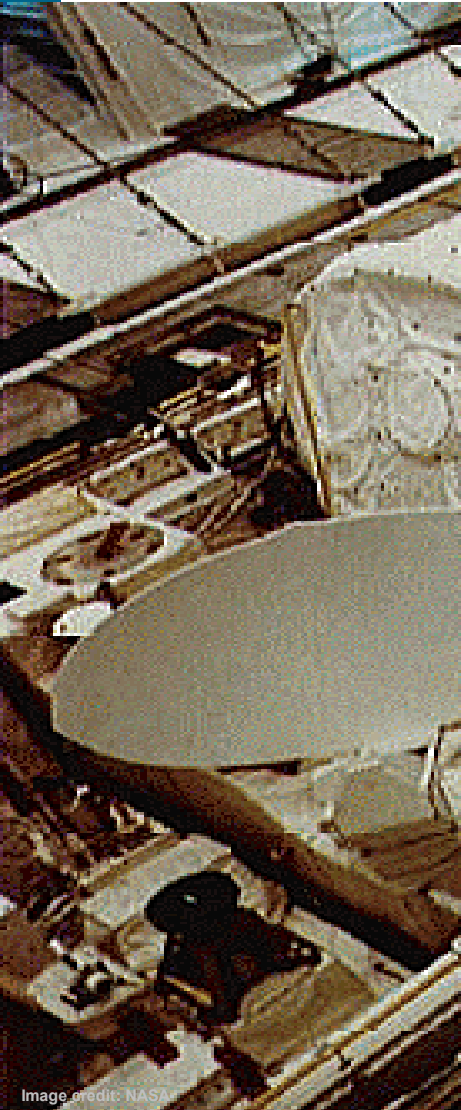


# Outline

- German SAR Heritage in X-Band
- Status TerraSAR-X and TanDEM-X
- HRWS Phase 0/A Mission Concept and German X-Band Roadmap Continuation

A 3D rendering of a Synthetic Aperture Radar (SAR) satellite system in orbit. The main satellite is a large, rectangular box with a grid of solar panels on one side and a large, circular antenna on the other. It is connected to a smaller satellite or probe by a long, thin cable. The background shows the Earth's horizon and a view of the planet's surface, including land and water.

# German SAR Heritage in X-Band



**MRSE**  
**1983**

**SIR-C/X-SAR**  
**1994**



**SRTM**  
**2000**



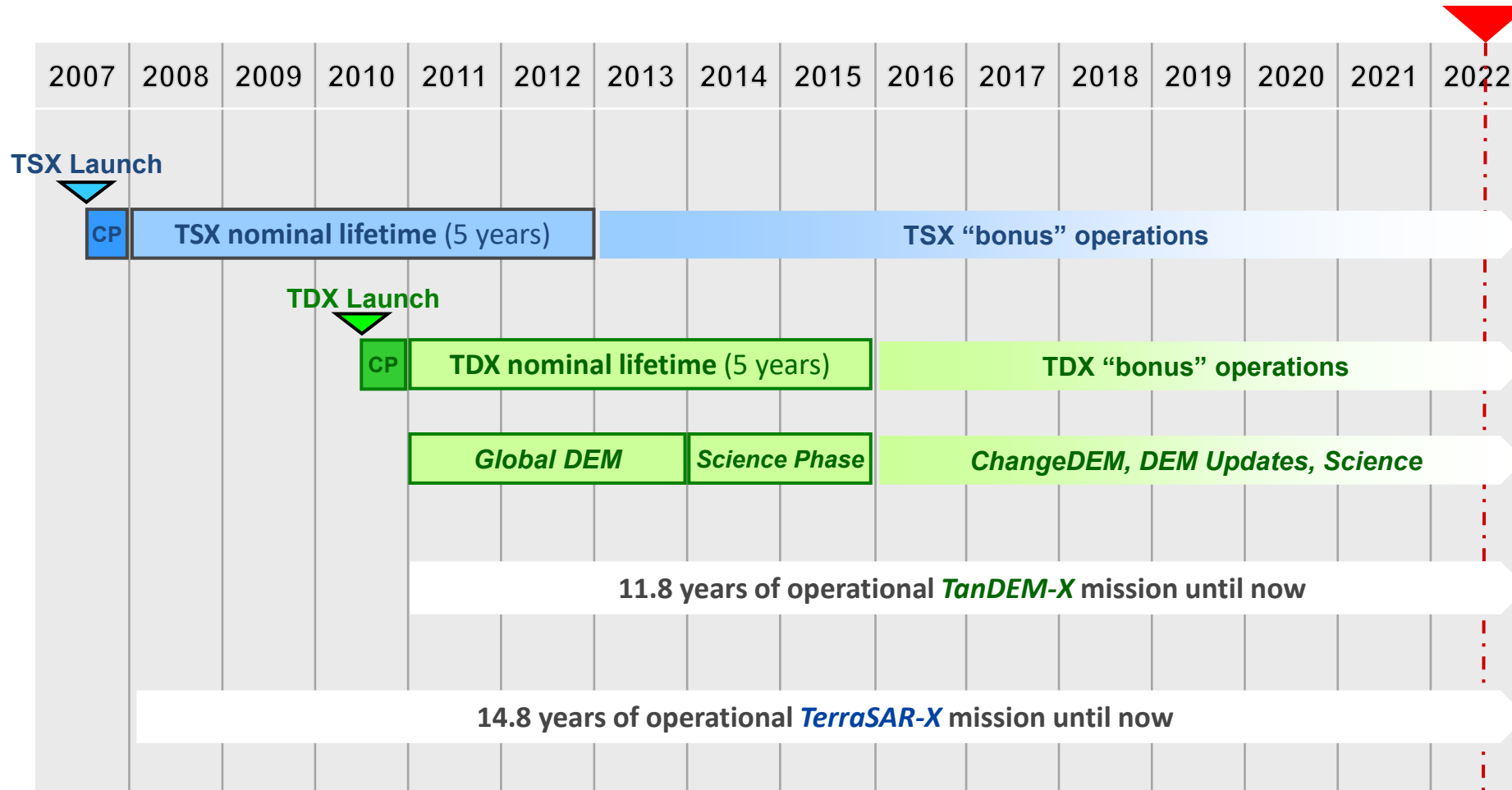
**TerraSAR-X**  
**2007**

**TanDEM-X**  
**2010**

A 3D rendering of the TanDEM-X and TerraSAR-X satellite constellation. Two satellites are shown in orbit above the Earth's surface. The larger satellite on the left is TerraSAR-X, and the smaller one on the right is TanDEM-X. They are connected by a long, thin cable. The Earth's surface is visible below, showing a mix of green land and blue water. The background is a dark blue sky with a thin white line representing the Earth's horizon.

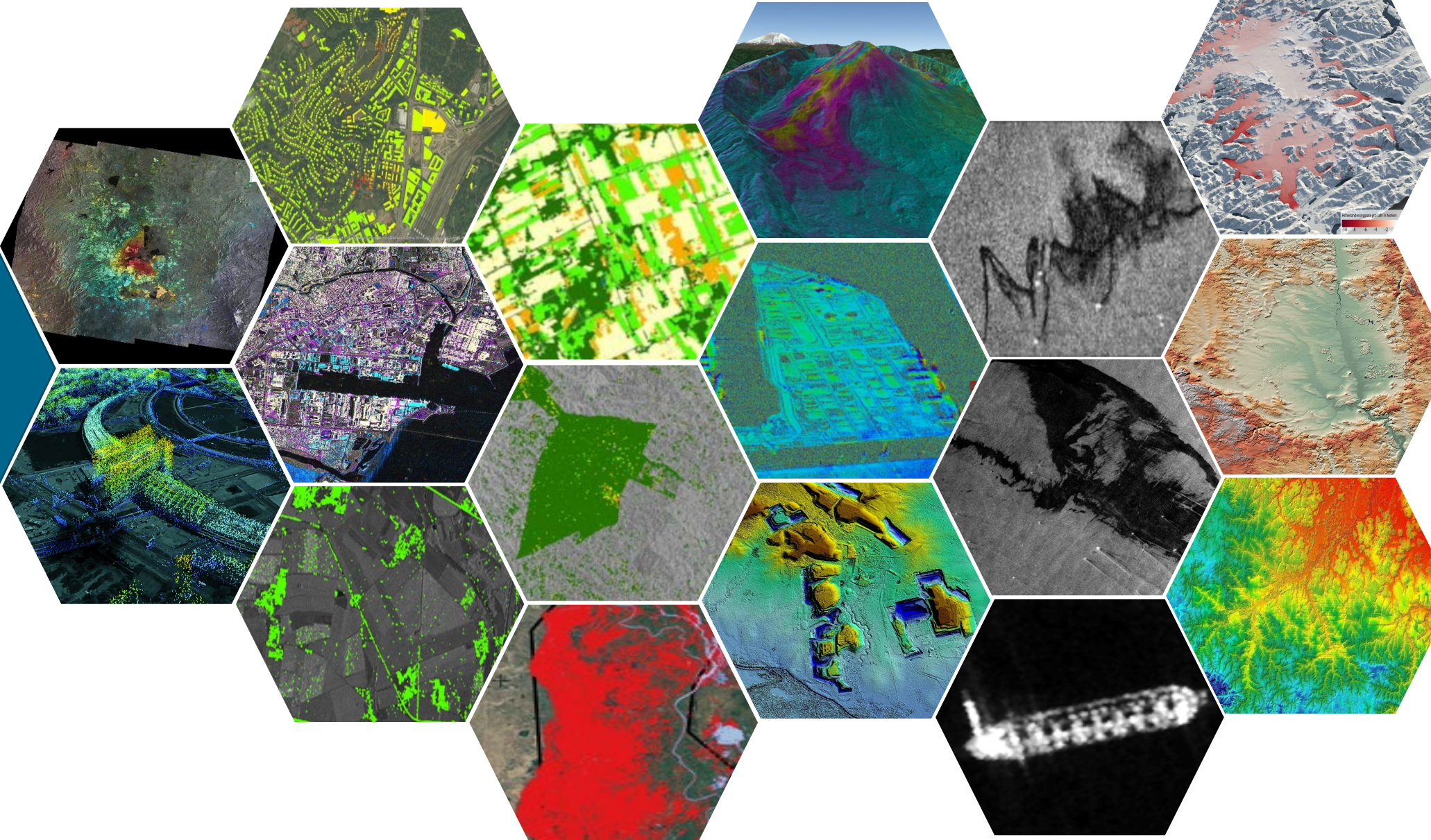
# Status TerraSAR-X & TanDEM-X

# Status TerraSAR-X and TanDEM-X



Source: Stefan Buckreuss, DLR-HR

# Applications of TerraSAR-X and TanDEM-X



# TanDEM-X | Global DEM

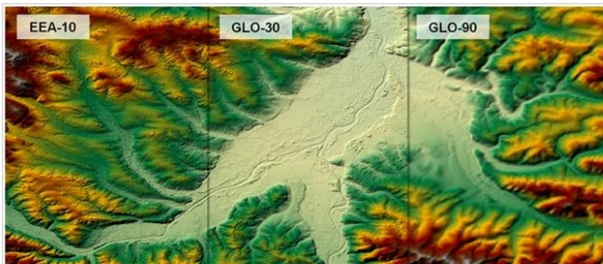
## 📍 Copernicus DEM: a new digital elevation model for the Copernicus programme

### Copernicus DEM: a new digital elevation model for the Copernicus programme

Elevation data is a crucial source of information for processing Earth Observation data and many downstream applications. In order to further advance the harmonisation under the Copernicus Programme, an official Copernicus Digital Elevation Model (DEM) is now made available. This globally homogenous DEM provides the Copernicus user community with an improved and harmonised high-quality dataset.

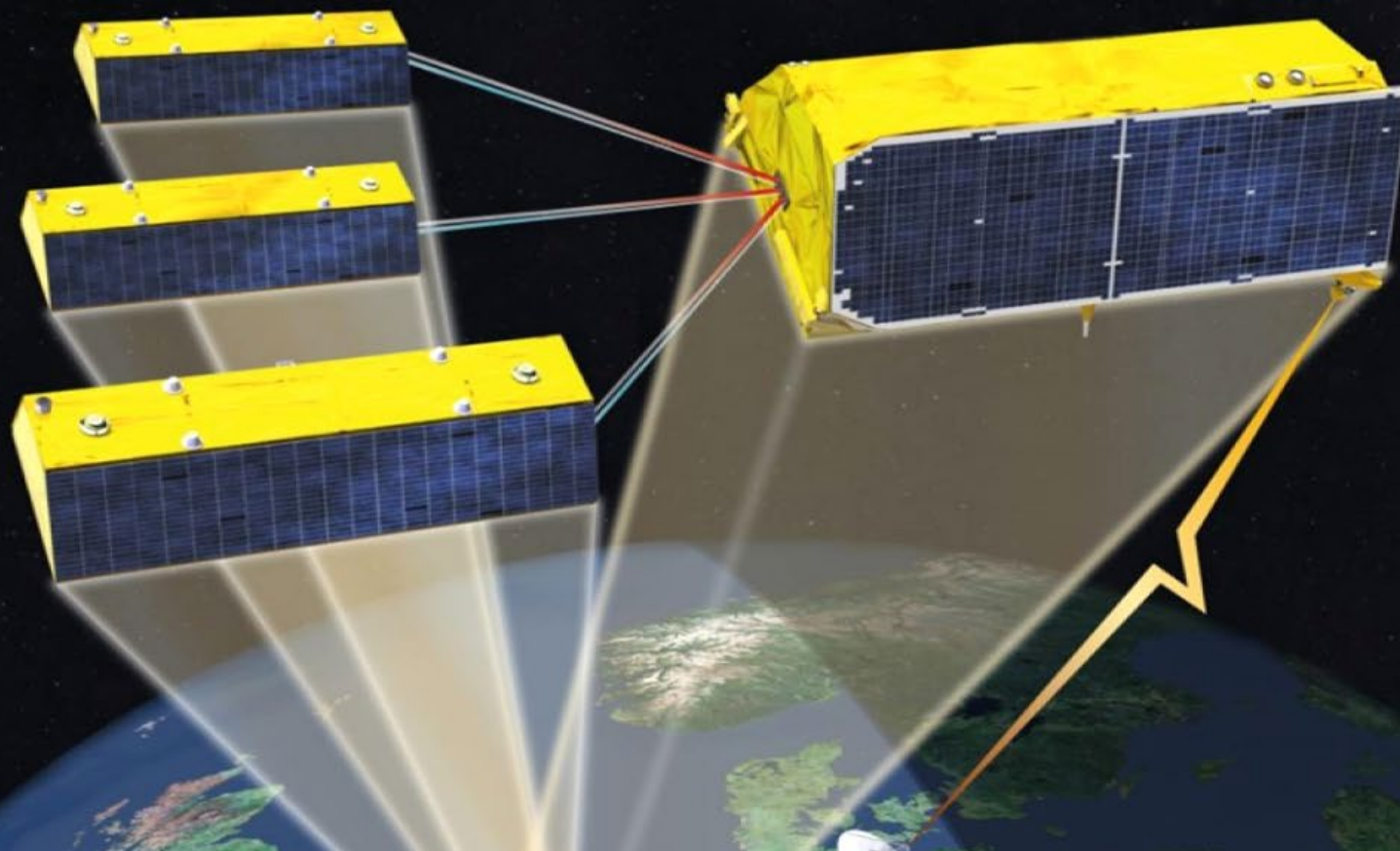
The Copernicus DEM is a surface model which represents the surface of the Earth including buildings, infrastructure and vegetation. It includes three instances with different resolutions:

- 90 meter dataset with global coverage
- 30 meter dataset with global coverage
- 10 meter dataset for the EEA-39 area



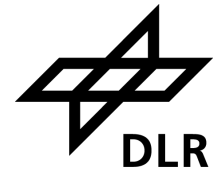
Copernicus DEM data at the three available spatial resolutions: 10m (left), 30m (centre) and 90m (right)





# HRWS Phase 0/A Mission Concept and SAR Roadmap continuation

# HRWS Phase 0/A



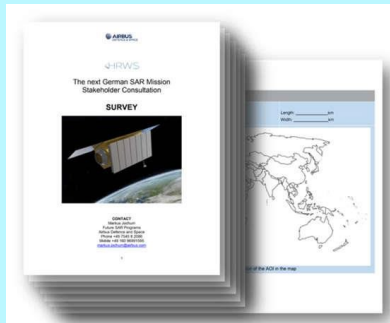
Feasibility Study  
**AIRBUS**

**Requirements**

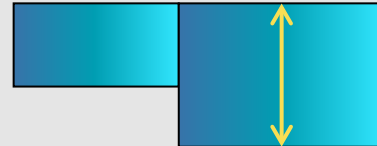
Very high resolution



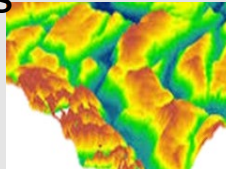
**User Surveys**



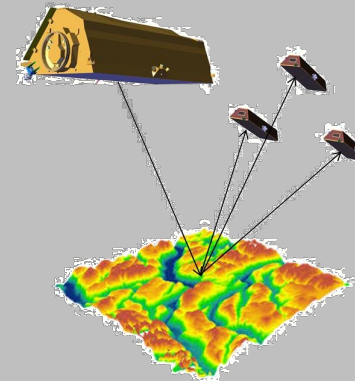
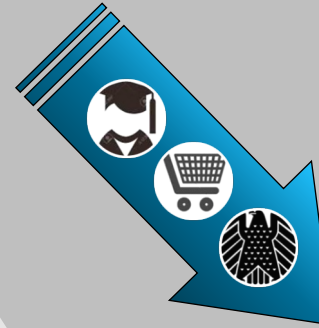
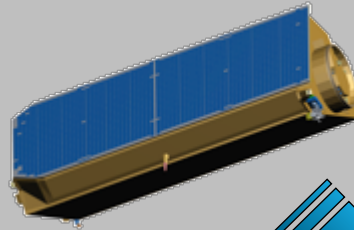
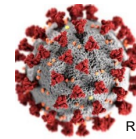
**Wider swaths**



**DEMs**



2019+



The technical concept is great.

2020



It is difficult to match time & budget constraints of the 3 Partners.

Mission concept can not be financed - at this moment, as it is -

2022



**The Mission Concept has to evolve**

Re-think the high level requirements and look for alternatives and opportunities.

2016

Phase 0/A

2018



# SAR Roadmap Continuation



German Federal Government highlights the importance of the continuity of the German SAR Roadmap  
The DLR Space Agency aims to consolidate the general user needs for the follow-on mission in the next months

1. Internal analysis on strengths/weaknesses/interests & situation around international missions and NewSpace

2. Interaction with the German Ministries

 2nd Workshop International Coordination SAR Missions, Frascati

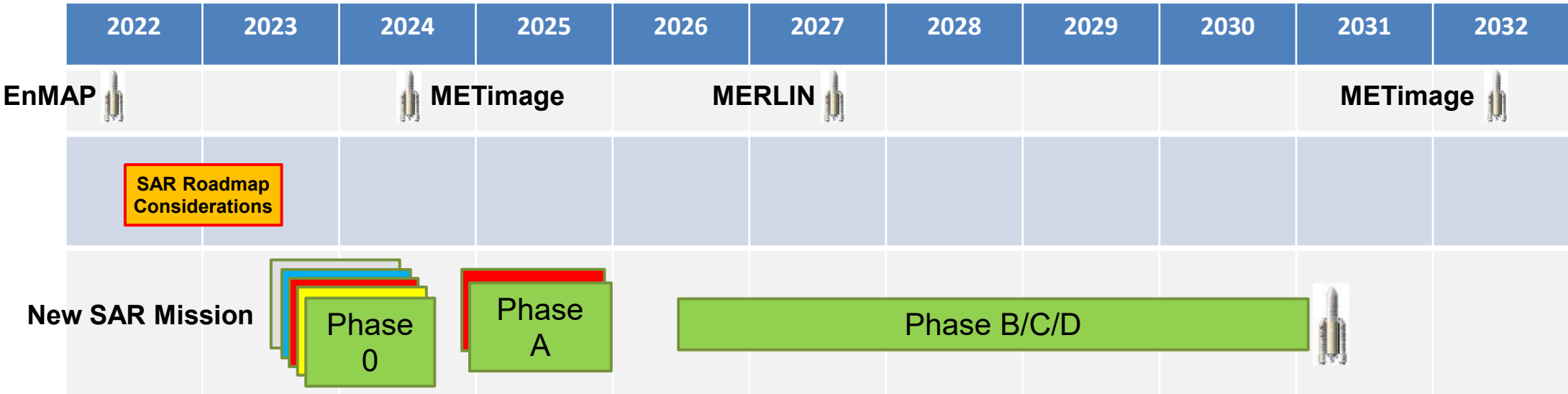
3. Dialog with Scientific and Users groups

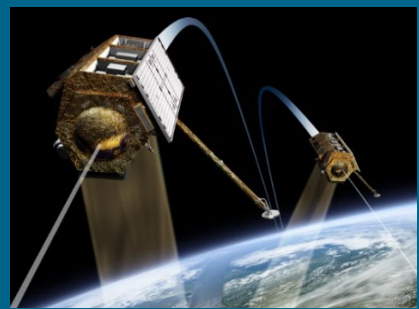
4. Workshop with experts in Hardware & Technology

5. Consolidation through DLR Space Agency

2023

# SAR Roadmap Continuation | Timeline





Thank you for your attention

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