

Commercial satellite data in agriculture and food security



Commercial satellites included in ESA's Third Party Missions (TPM) programme deliver data that have critical applications to the agriculture sector

Key applications

TPM data provided to users support the agriculture sector by enabling:

- Precision farming
- Crop yield prediction
- Water scarcity assessments
- Crop damage monitoring
- Field biomass estimation

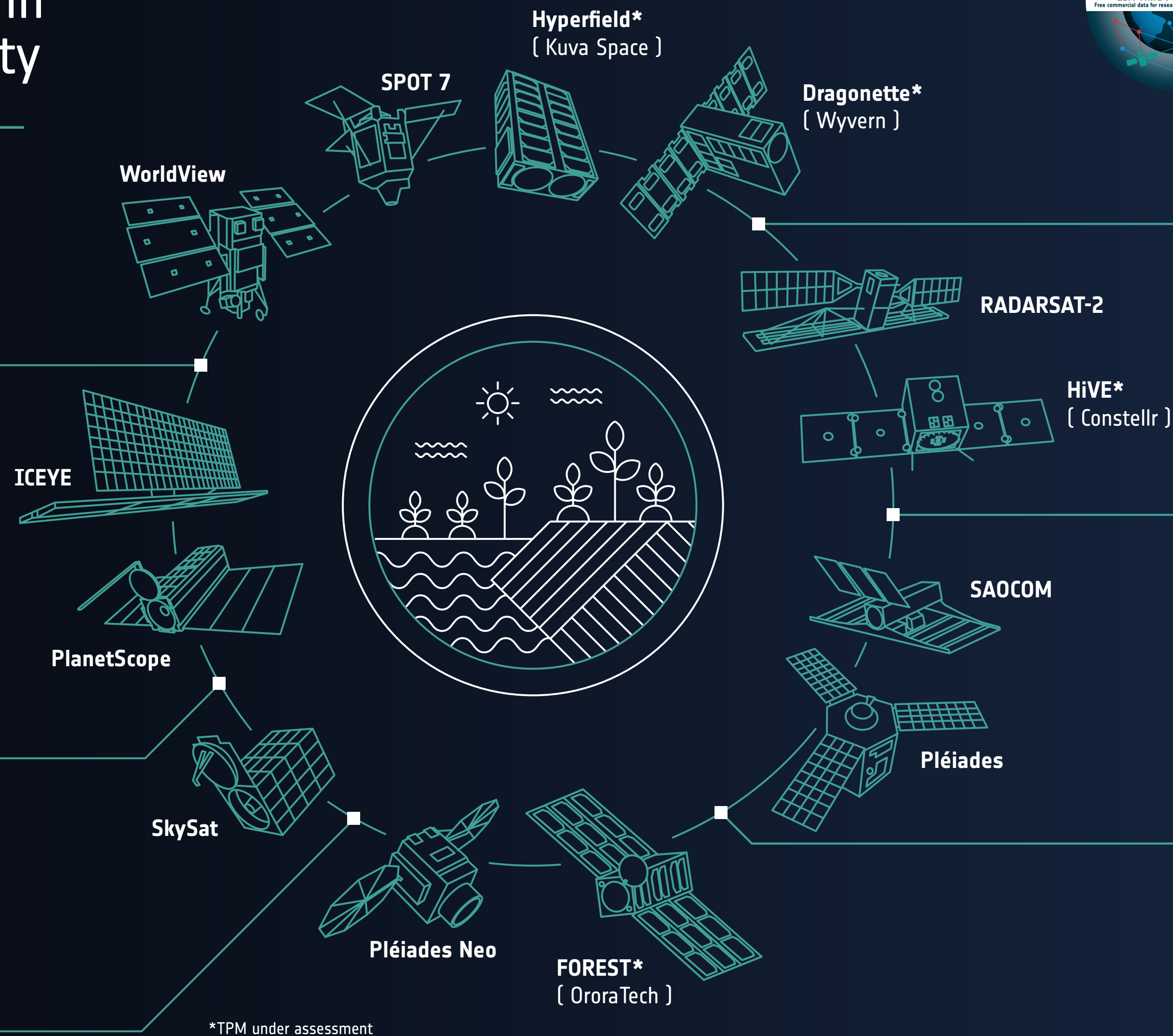


Normalised Differential Vegetation Index (NDVI)

NDVI is a measure of vegetation health. It is used to assess green vegetation and can help estimate crop yields and pasture health. Several commercial missions, including **SPOT** and **WorldView-3**, provide observations for the calculation of NDVI

Irrigation

Thermal infrared data from missions such as **FOREST** or **HiVE** will provide data on land surface temperatures. These can help users correlate and understand evapotranspiration rates, which in turn help determine how much irrigation water farmers should apply to fields



Soil moisture

Soil moisture is a key agricultural parameter, and changes in soil moisture have a significant impact on agricultural productivity. Third Party radar missions, such as **SAOCOM**, provide data that users can work with to generate soil moisture maps

Crop health monitoring

Combined with in situ data, detailed multispectral data from missions such as **SkySat**, **Pléiades** and **Pléiades Neo**, improve the detection of crops that have been affected by plant diseases and pests.

Radar data from missions like **ICEYE** and **RADARSAT-2** also support crop monitoring

Crop yield

High-frequency, high-resolution data from **PlanetScope** provide users with detailed information about agricultural fields, including size, biomass and harvest index. These insights support sustainable farming practices.

Additionally, hyperspectral data from missions such as **Hyperfield** and **Dragonette** can help users better estimate vegetation properties, automatically map land cover changes, identify crop types and make better yield predictions

Browse TPMs and discover how to access the data here:
earth.esa.int/eogateway/missions/third-party-missions