NEXTLAND
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CANOPY HEIGHT

Canopy Height in the grasp of our hands: A game changer

The Canopy Height Service provides a comprehensive solution for accurate and efficient canopy height mapping on a large scale. This service plays a pivotal role in ecosystem monitoring and sustainable forest management. By harnessing advanced end-to-end learning techniques, it uses spaceborne multispectral images. Moreover, it leverages the power of multitemporal data from image sequences to ensure precise and reliable canopy height estimations. The Canopy Height Service empowers environmental professionals, forest managers, and conservationists, consultant companies with valuable insights, enabling informed decisions and application of proactive measures.

"The Canopy Height service unlocks forest sustainability from space to preserve natural resources and promote sustainable land management practices and business.

Ioannis Manakos
Centre for Research and Technology Hellas, Greece

Key benefits

⊕ **Advanced Technology:** Utilizes cutting-edge end-to-end learning techniques and convolutional LSTM models for accurate and efficient canopy height estimation

⊕ **Environmental Protection:** Contributes to the protection of ecosystems and biodiversity through accurate monitoring

⊕ **Multispectral Insight:** Estimates canopy height from single spaceborne multispectral images, reducing the need for extensive data collection

⊕ **Global Impact:** Allows organizations and governments to address forest-related challenges on a global scale

⊕ **Sentinel-2 Compatibility:** Specifically tailored for Sentinel-2 products, ensuring seamless integration with widely and freely available satellite data.

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Stakeholders

⊕ **Forestry and Land Managers:** Professionals responsible for managing forests and land resources

⊕ **Government Agencies:** Government bodies responsible for forestry management, environmental protection, land-use planning, and civil protection

⊕ **Policy Makers:** Decision-makers at the local, regional, and national level

⊕ **Earth Observation actors (scientists, researchers, technical personnel, consultants):** Actors specializing in satellite imagery and remote sensing

Key specifications

Key specifications	Canopy height
Spatial coverage	Global
Temporal coverage	2017 - current
Spatial resolution	- 10 m
Temporal resolution	Annual or seasonal
File format	GeoTIFF
Reference system	WGS84
Satellites used	Sentinel-2
Timeliness	5 days (indicative, depends on the geographical parallel of the area)
Data delivery	API
Limitations	Limitations on accuracy in high slope areas (e.g., > 30°)
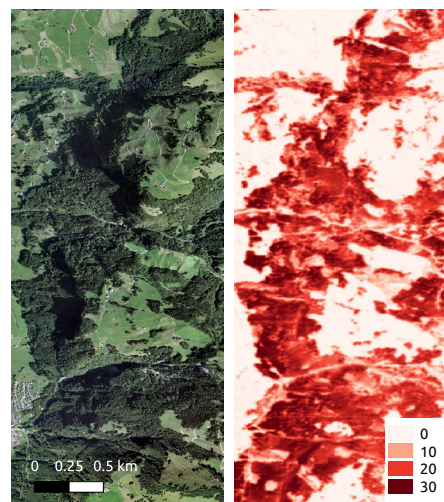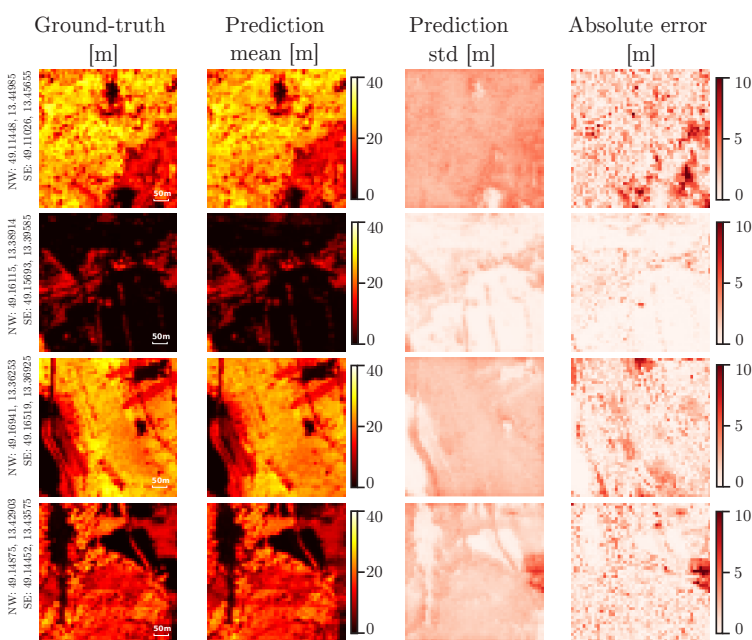
A high-resolution RGB (left) and estimated canopy height map (right) of a large area in Switzerland. Colorbar units in meters.

Predicted mean and standard deviation of canopy height alongside with LiDAR measured ground truth and absolute error.

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