COPERNICUS MASTER IN DIGITAL EARTH

With the support of the Erasmus+ Programme of the European Union

How reliable are SEN2 cloud detection algorithms?

Global uncertainty estimation using Deep Kernel Learning.

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Erasmus Mundus Joint Master Degree Programme
Copernicus Master in Digital Earth
Specialization track GeoData Science

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Acknowledge

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sen2cube.at

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EARTH IMAGERY FOR IMPACT

Google Cloud

PARIS LODRON UNIVERSITÄT SALZBURG

R consortium

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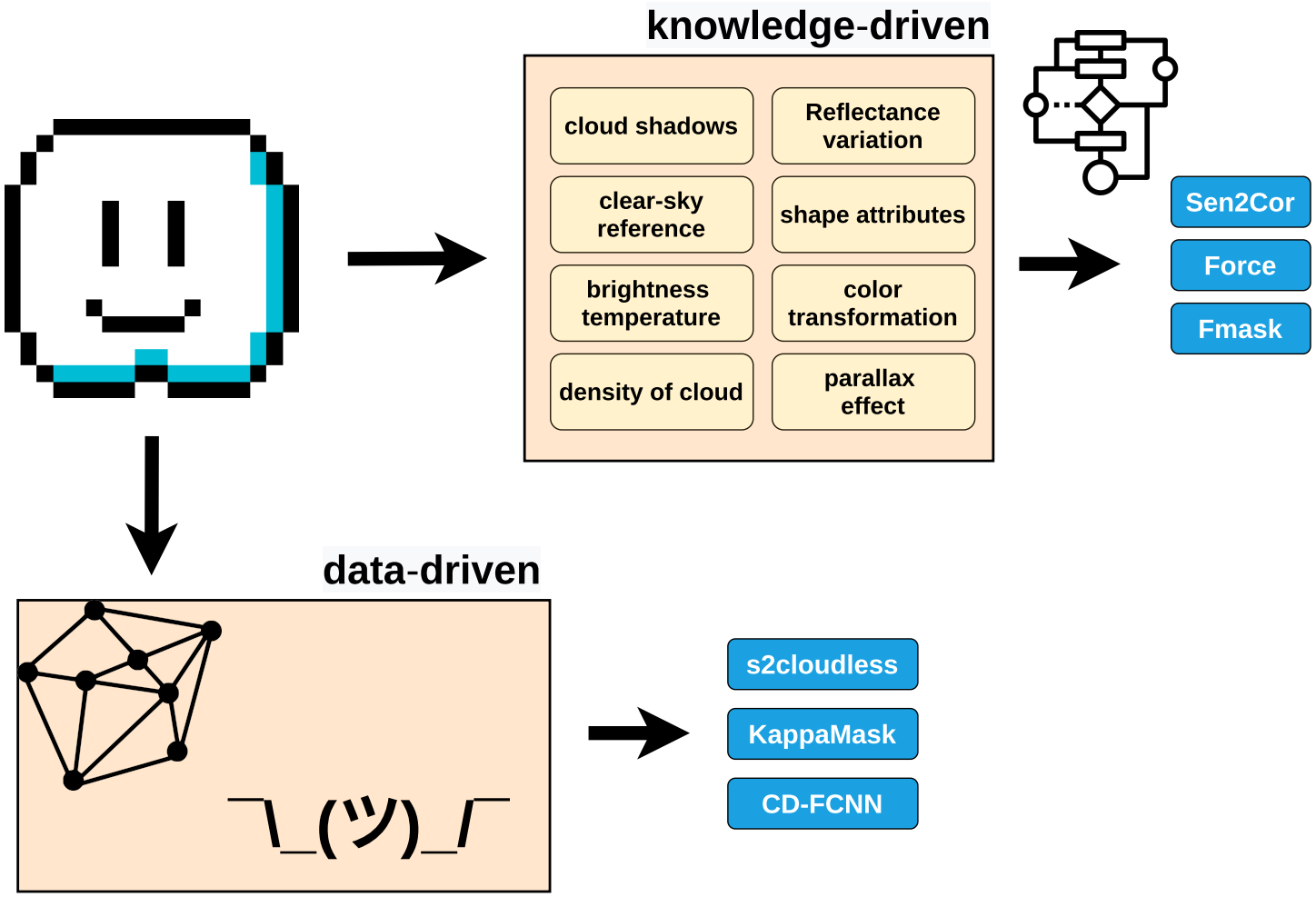
What is a cloud?

A cloud is a mass of water drops or ice crystals suspended in the atmosphere.

What is a cloud?



Context - I

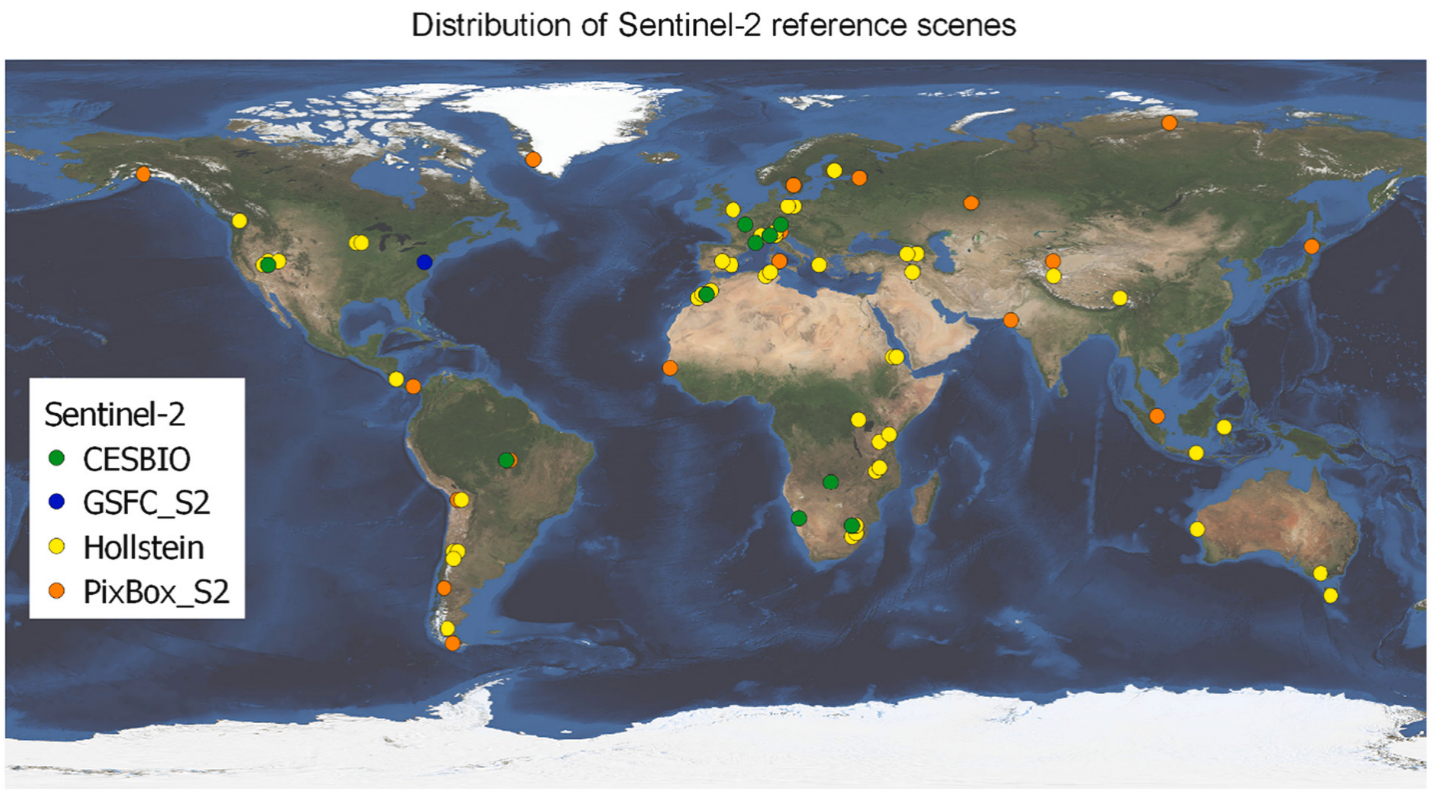
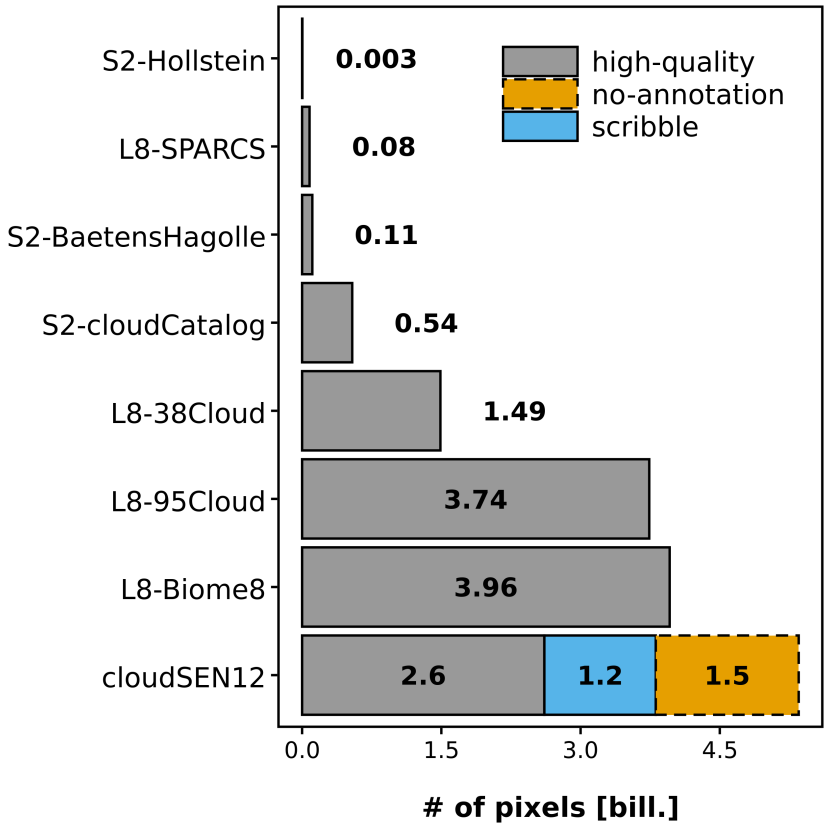


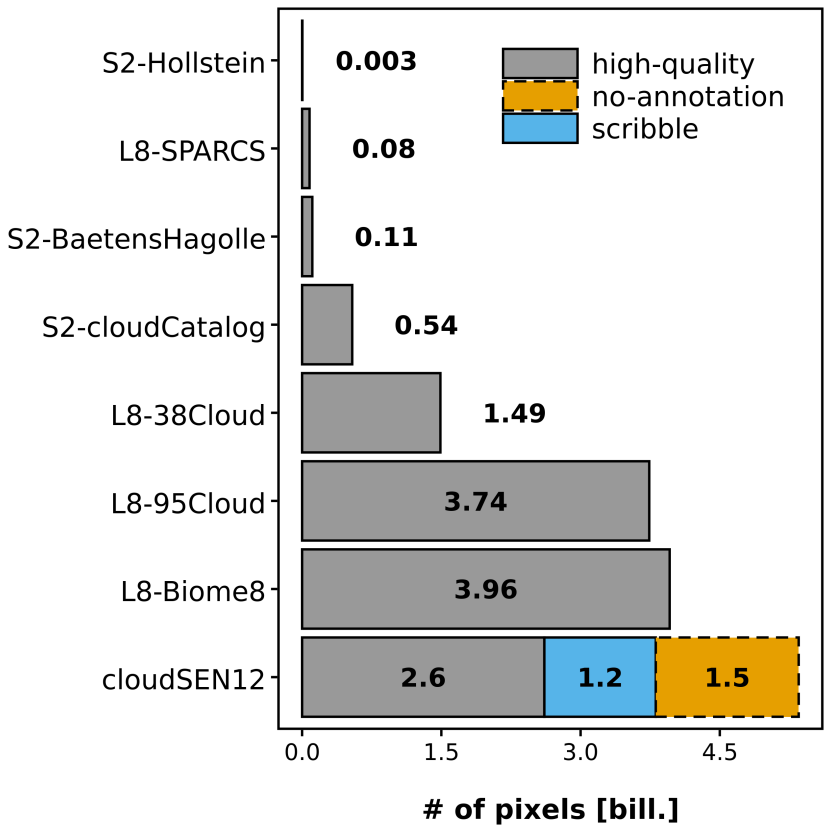
Figure: Geographical distribution reference cloud detection datasets for Sentinel-2 (Skakun et al. 2022).

Context - II



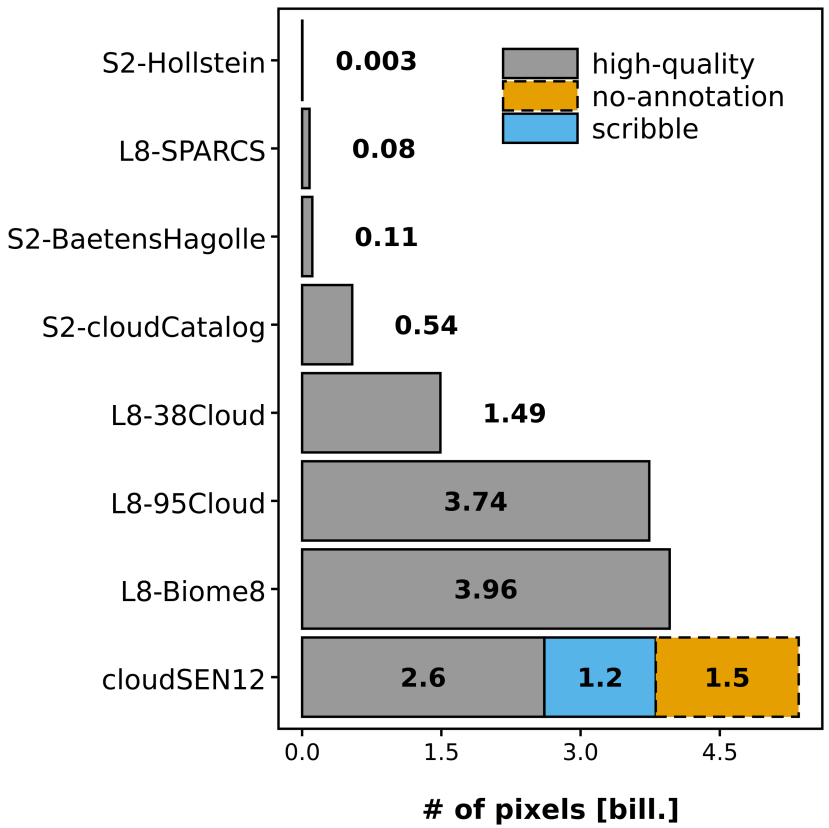
- Cloud labels created by human photo-interpretation, active learning and ground-based camaras.

Context - II



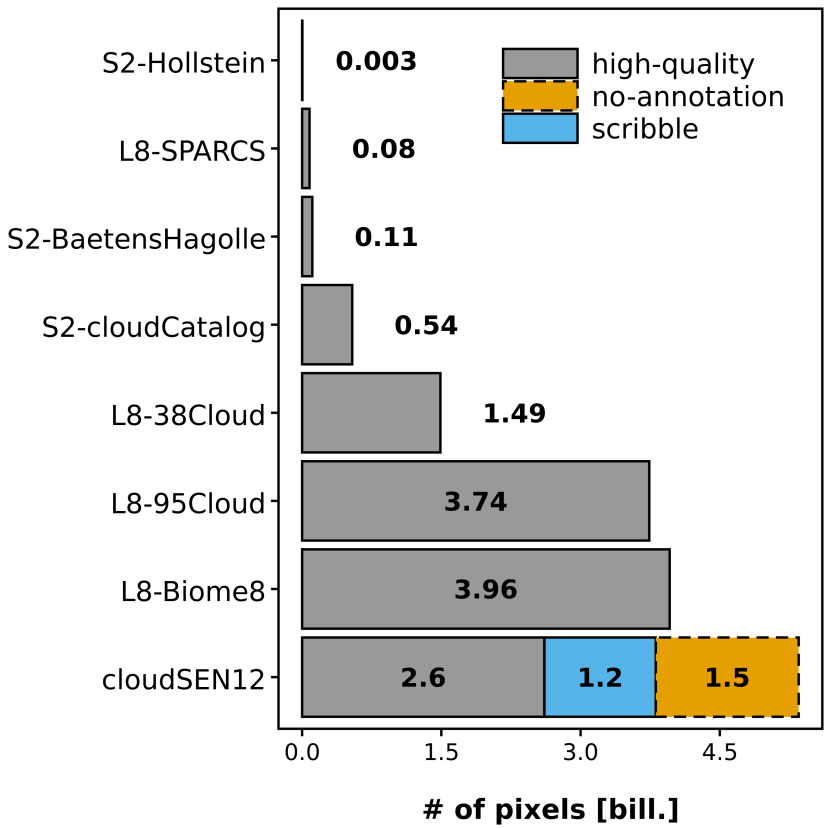
- Cloud labels created by human photo-interpretation, active learning and ground-based camaras.
- **No temporal features**.

Context - II



- Cloud labels created by human photo-interpretation, active learning and ground-based camaras.
- **No temporal features**.
- High class imbalance.

Context - II



- Cloud labels created by human photo-interpretation, active learning and ground-based camaras.
- **No temporal features**.
- High class imbalance.
- Created by ***closed science practices***.

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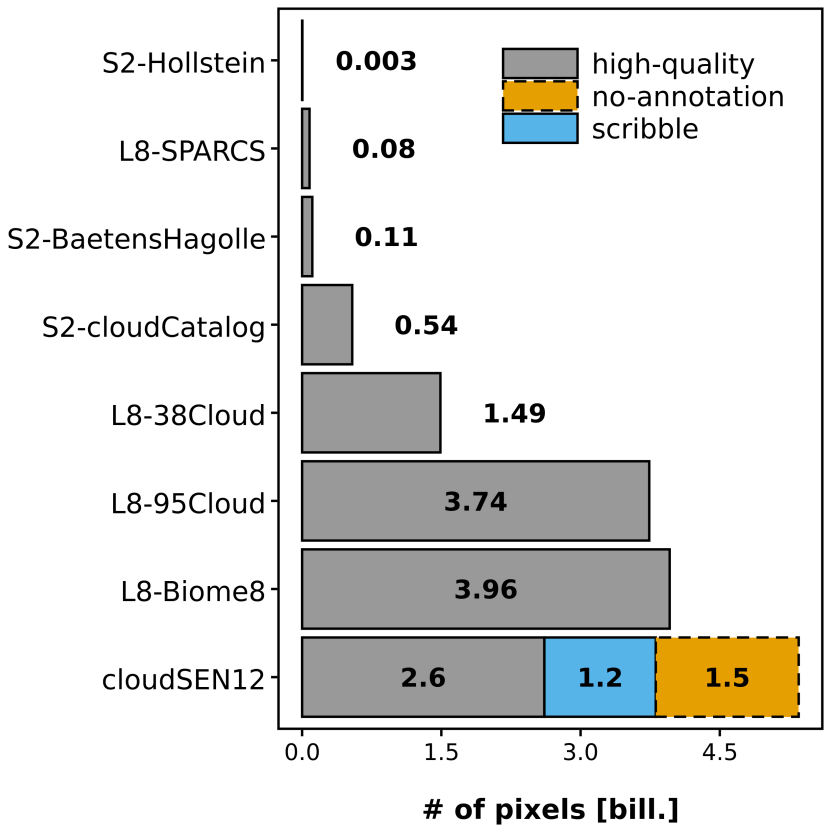
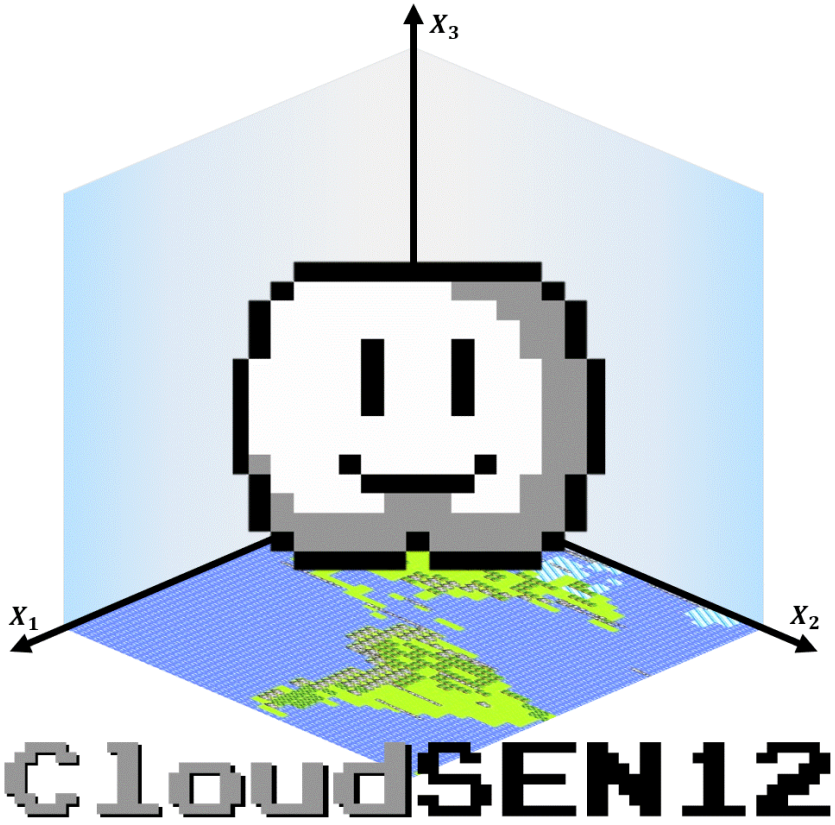


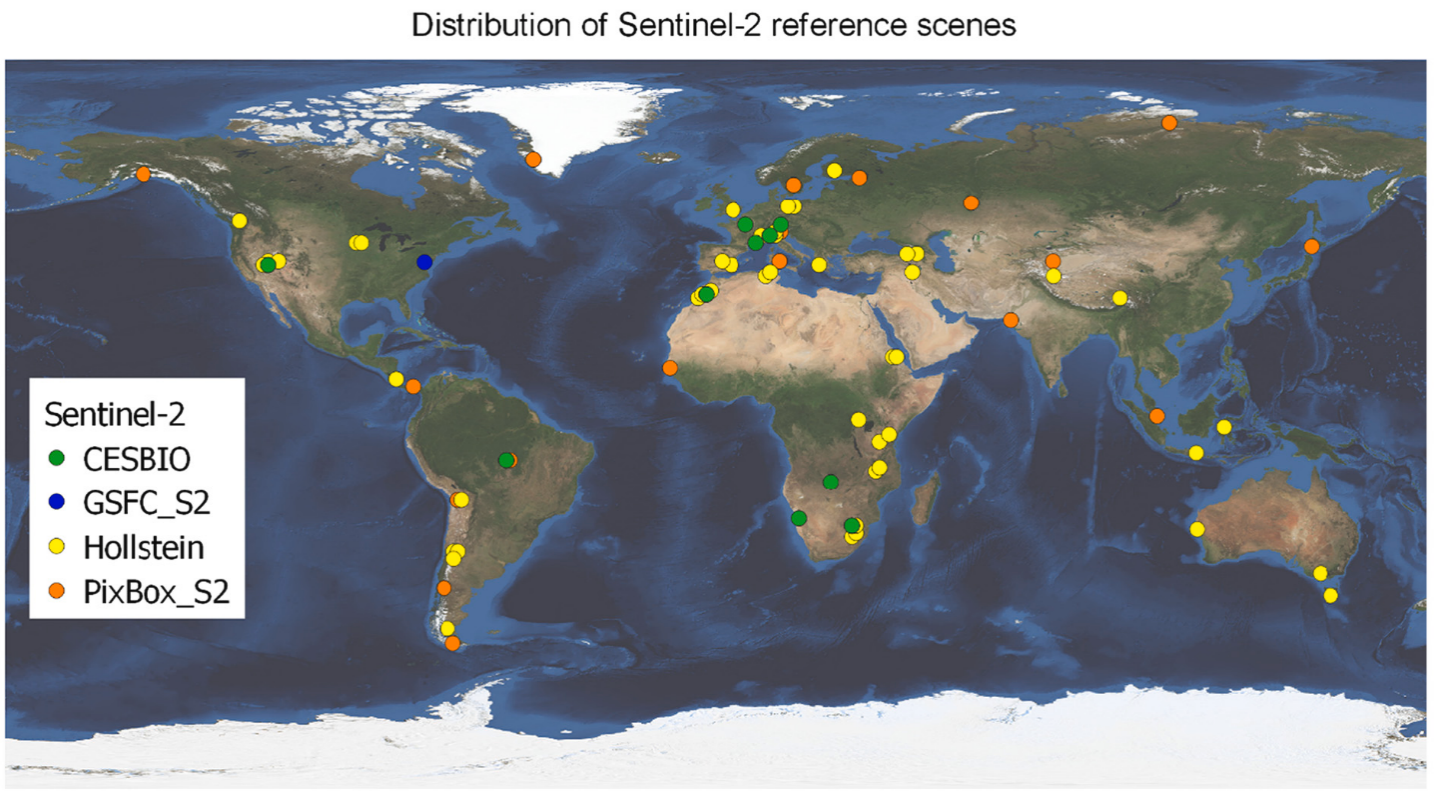
- Cloud labels created by human photo-interpretation, active learning and ground-based camaras.
- **No temporal features**.
- High class imbalance.
- Created by ***closed science practices***.
- **The quality of some datasets is poor.**

CloudSEN12 - I



https://cloudsen12.github.io/

Context - II



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CloudSEN12 - II

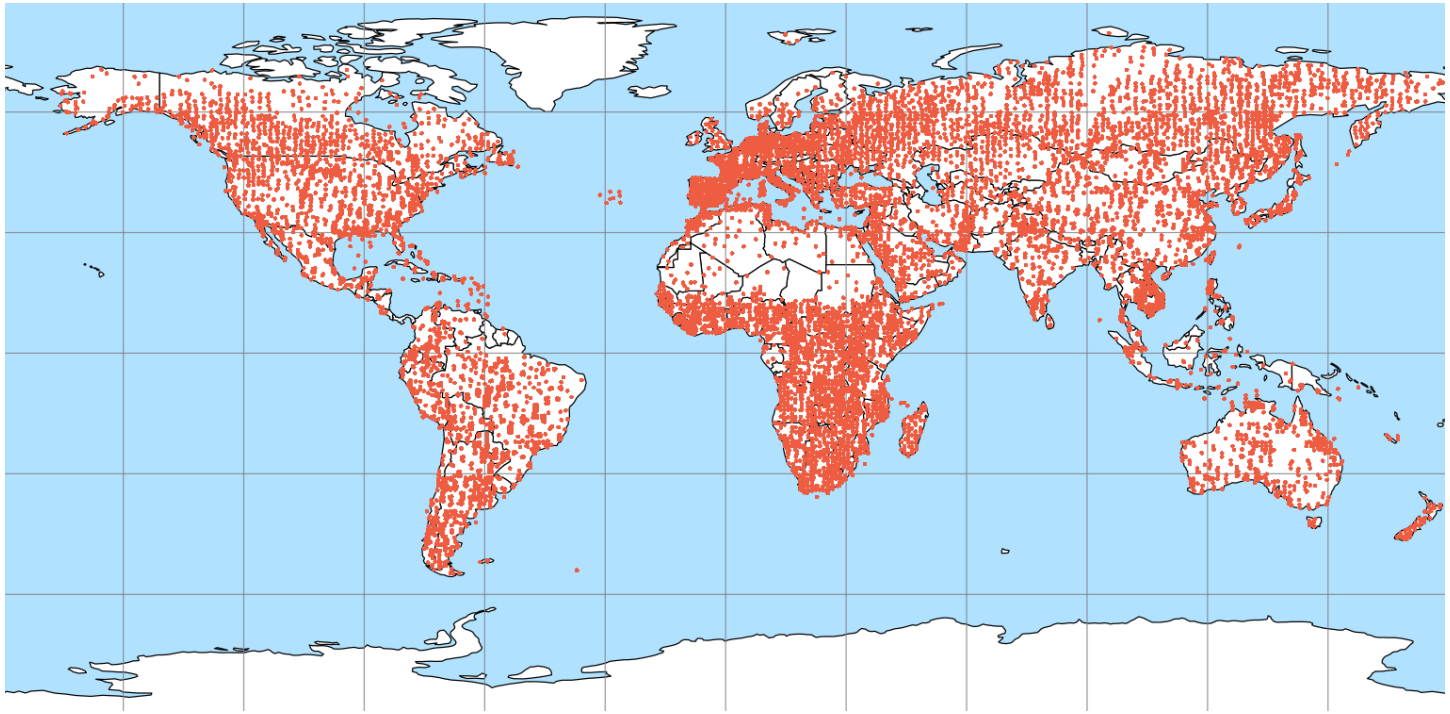

Figure: CloudSEN12 spatial distribution

Overview

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- The trivial Set Cover algorithm has running time of $\mathcal{O}(2^n)$.

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- bla, bla, bla...

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References

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