

Early-season crop yield forecasting with Sentinel-2

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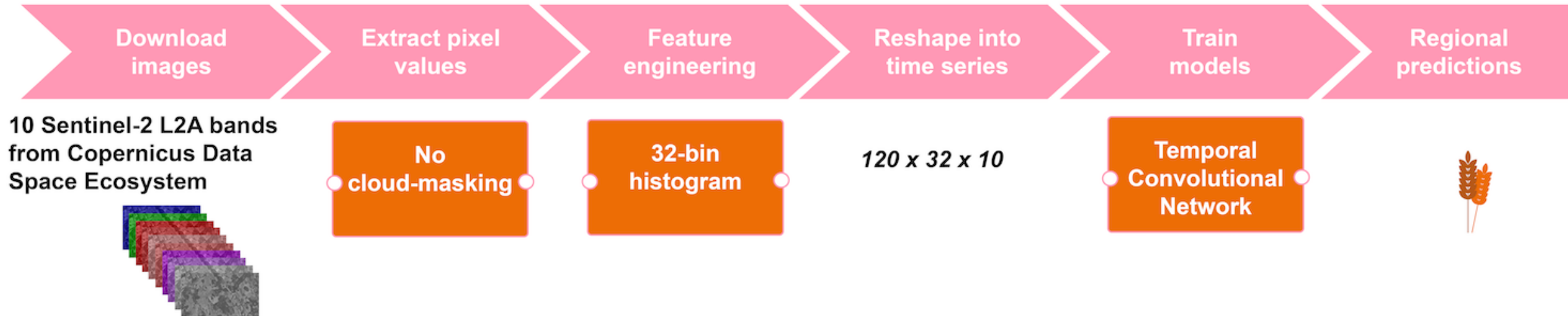
3 February 2025

@ UNSC56 Side Event: Operational application of EO data
for agricultural statistics



Crop yield forecasting in a nutshell

- Objectives: high granularity, high accuracy forecasts and minimal operational workload
- Sentinel-2 imagery only
- Object-based approach (farm/field parcel)
- Machine learning (neural network)



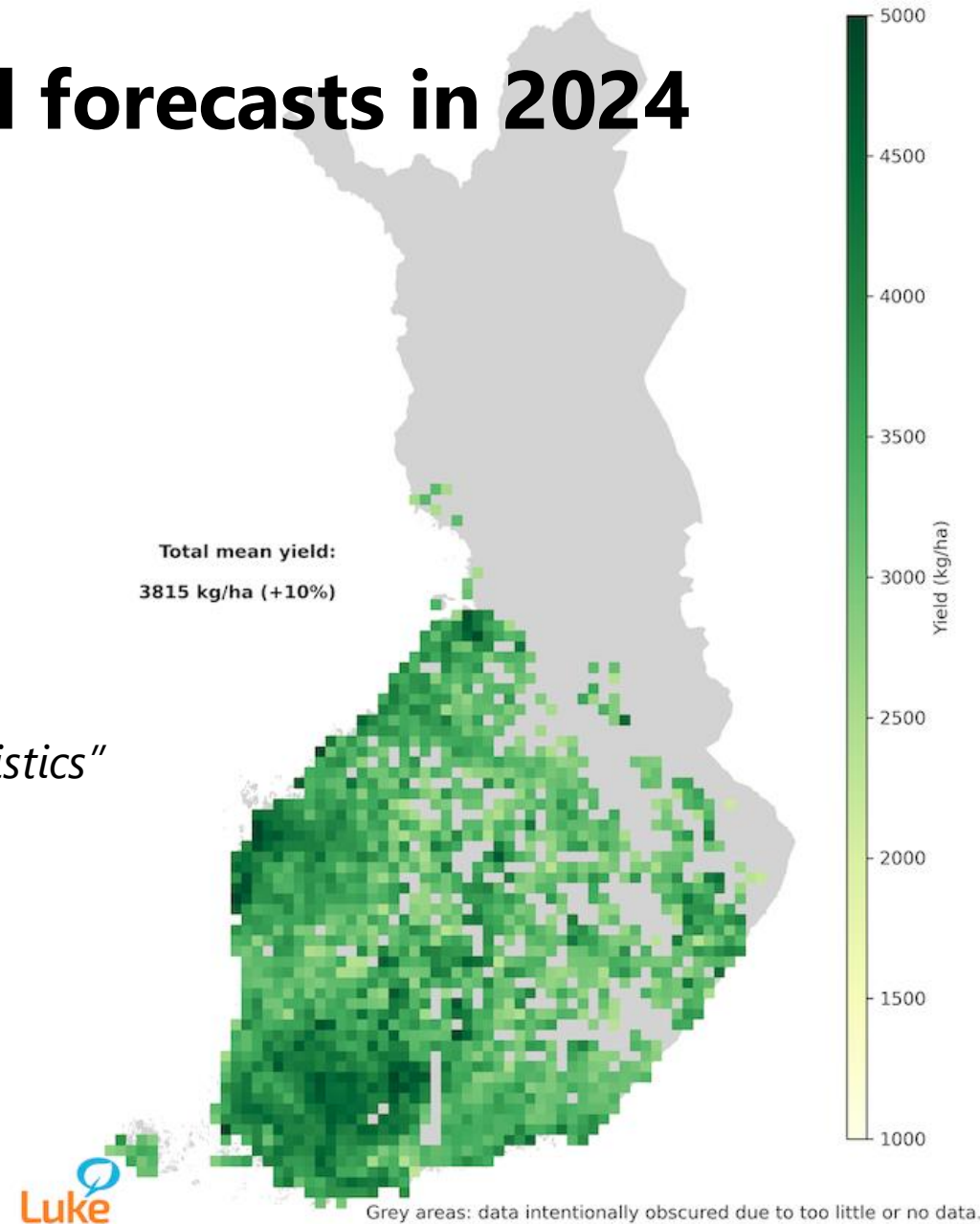
First release of in-season crop yield forecasts in 2024

Maaseudun Tulevaisuus, 18 July 2024

Satoennusteiden uusi aikakausi alkoi – satelliittikuvat tarkentavat viljatilastoja

Luonnonvarakeskuksen tilastopalvelut on kehittänyt satelliittikuviin perustuvan menetelmän viljojen sadon ennustamiseen. Jos menetelmä osoittautuu tulevinä vuosina käyttökelpoiseksi, sillä voidaan korvata ja täydentää viljelijöiltä kyselyillä kerättäviä tietoja.

“New era of crop forecasts---satellite images to improve crop statistics”



On applicability of the method to other regions

- Requires that field delineations and crop type are known
 - Monocultures (one crop, cropland mask)
 - Or as top-layer module after field delineation & crop type classification
- Scalable to any spatial and temporal resolution, should work on multimodal data
- Historical reference data (farmer surveys) are golden---even adapting foundation models would still require local data for validation (and an injection for training)



Thank you!

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