



SAR phenology across major West-African land cover types

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MOTIVATION

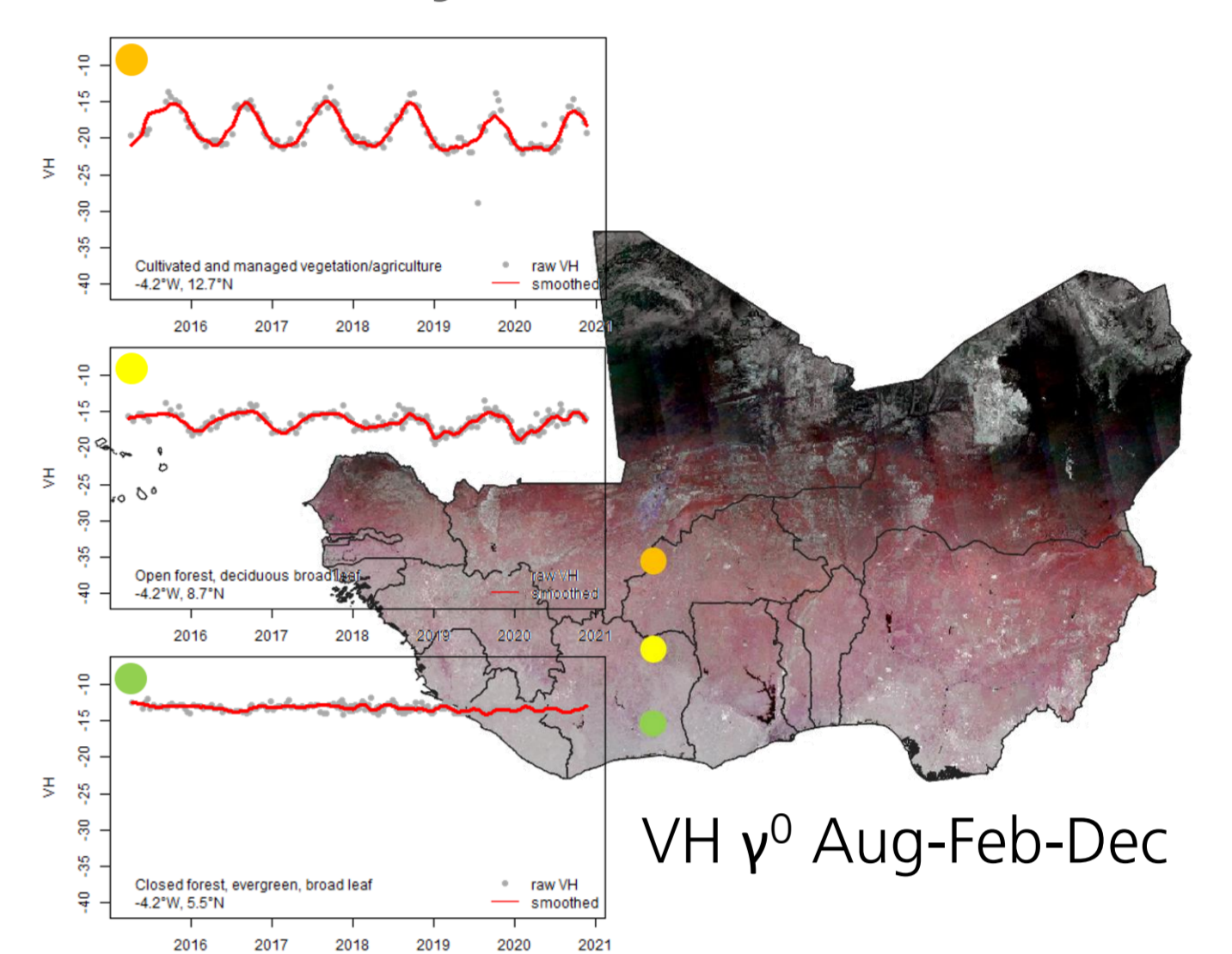
State of the art

- Optical data is (seasonally) limited in tropical regions (even in constellations of Sentinel-2/Landsat) – hence questionable for phenological analysis
- Many products exist (e.g. Modis) – none of them at high spatial resolution and large-scale coverage
- Many methods exist, typically based on optical data
- Synthetic aperture radar (SAR) phenology evaluated mainly for crops (e.g. rice, wheat, maize)

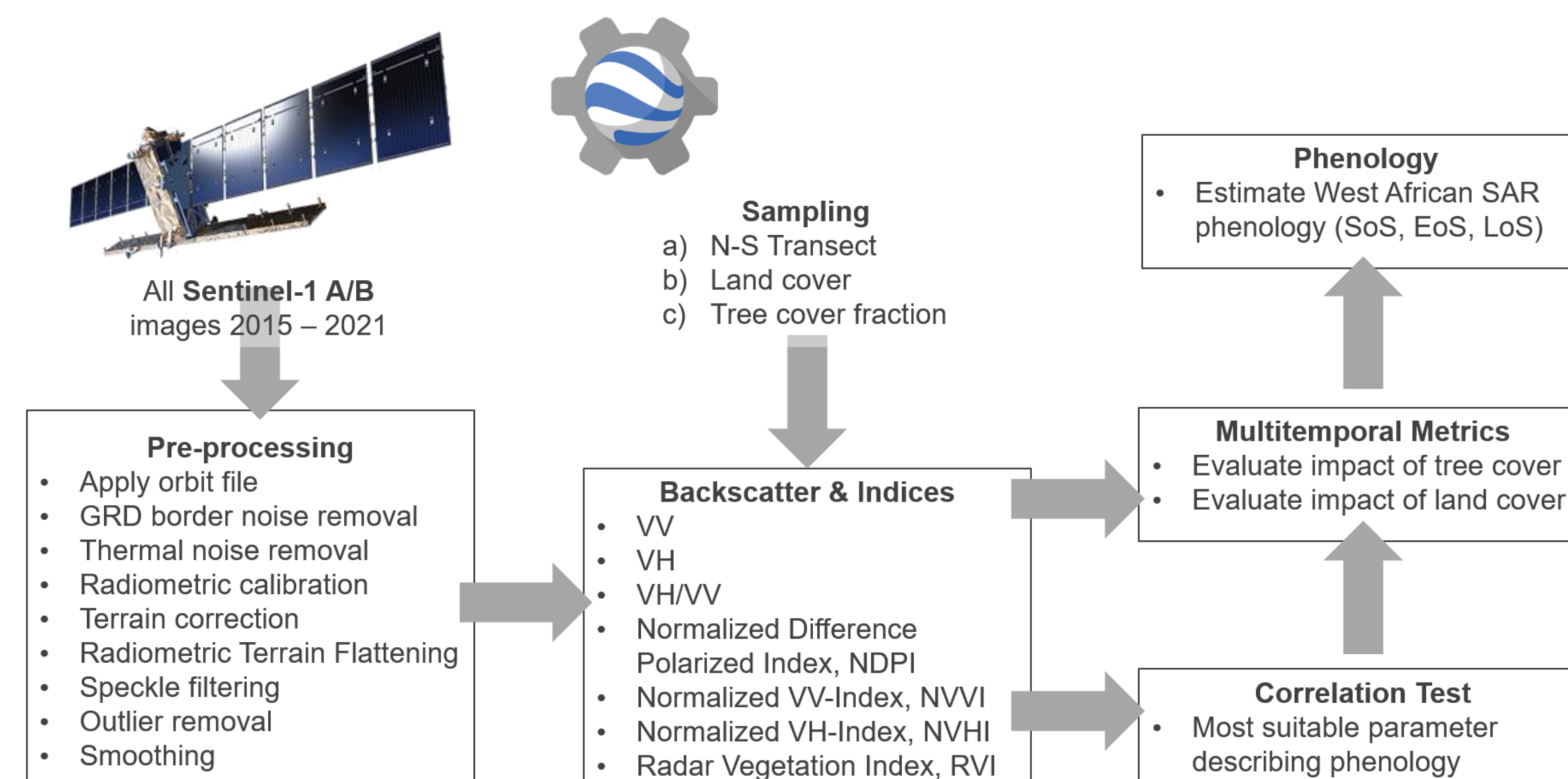
Objectives

- We aim at a better characterization of land cover temporal behavior
- Extract phenological parameters
- Evaluate Sentinel-1 for classification
- Address the WRAP 2.0 priority research theme 1 towards an updated and higher resolution West African time-variant LULC database (land units, plant functional types etc.)
- Phenology (Essential Biodiversity Variable) as important indicator of climate/ ecosystem variability & change

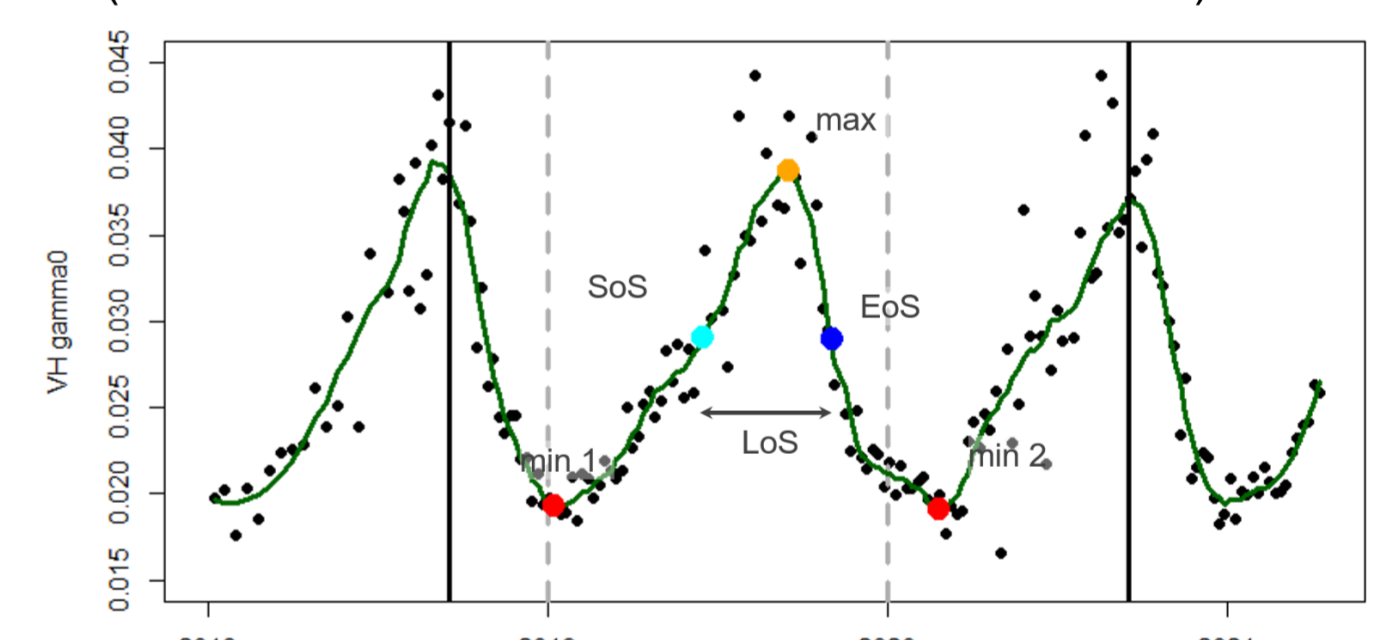
Sensitivity of SAR



APPROACH



- Multitemporal metrics include max, min, amplitude, integral, integral0, IQR, percentiles
- Uncorrelated variables in a N-S transect at 4.2°W through all land cover types are VV, VH, RVI, VH/VV
- Phenology: 50 % amplitude method (modified from Descals et al. 2020)



RESULTS

- S1 phenological patterns are generally consistent with optical products
- S1 phenology provides more spatial details than e.g. MODIS
- Phenology as class input still pending
- SAR metrics as input for classification seem reasonable
- Overall classification accuracy is low (0.65%), land cover classes not appropriate for the data

