NASA/NCEAS/iPlant Update

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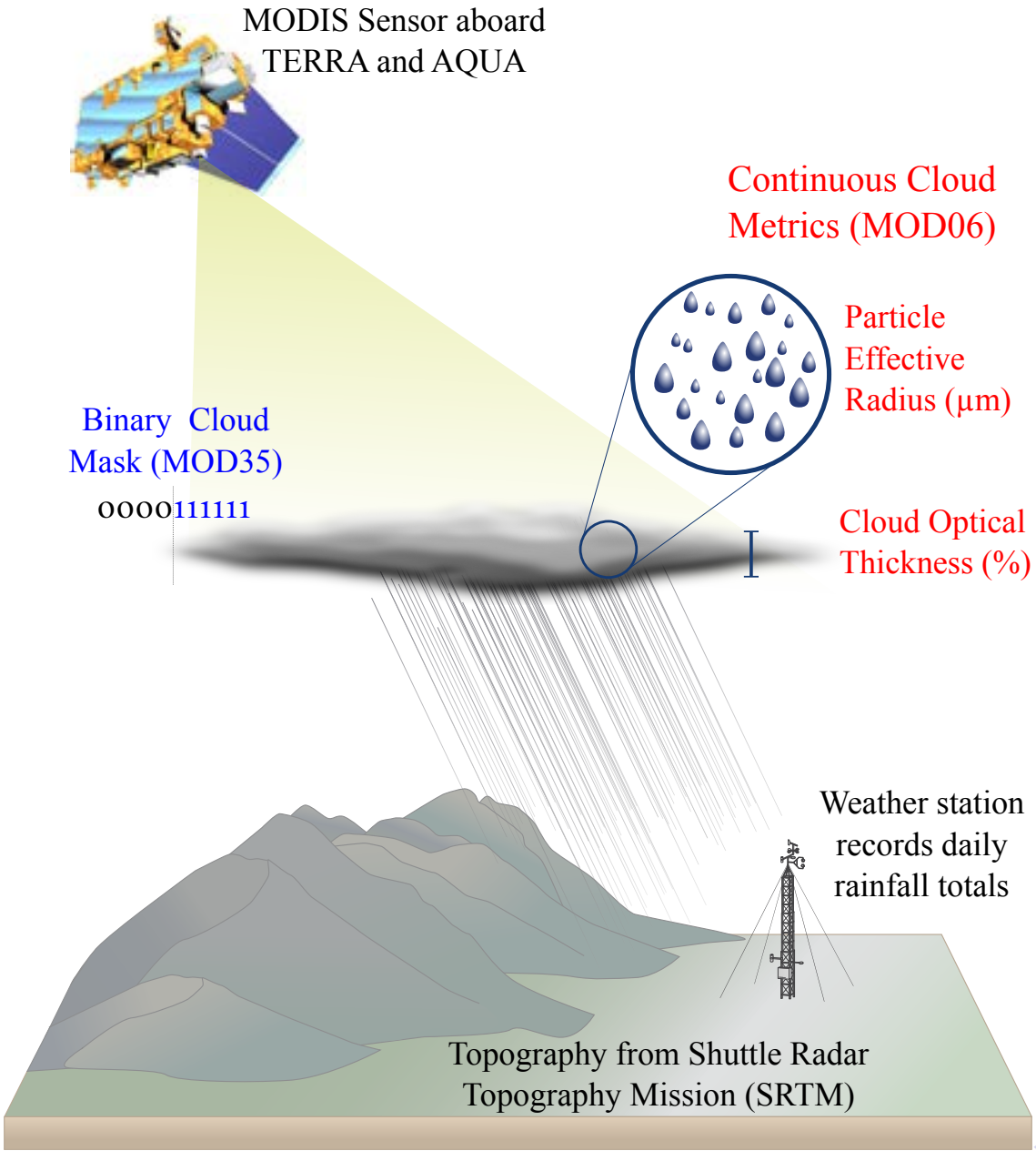
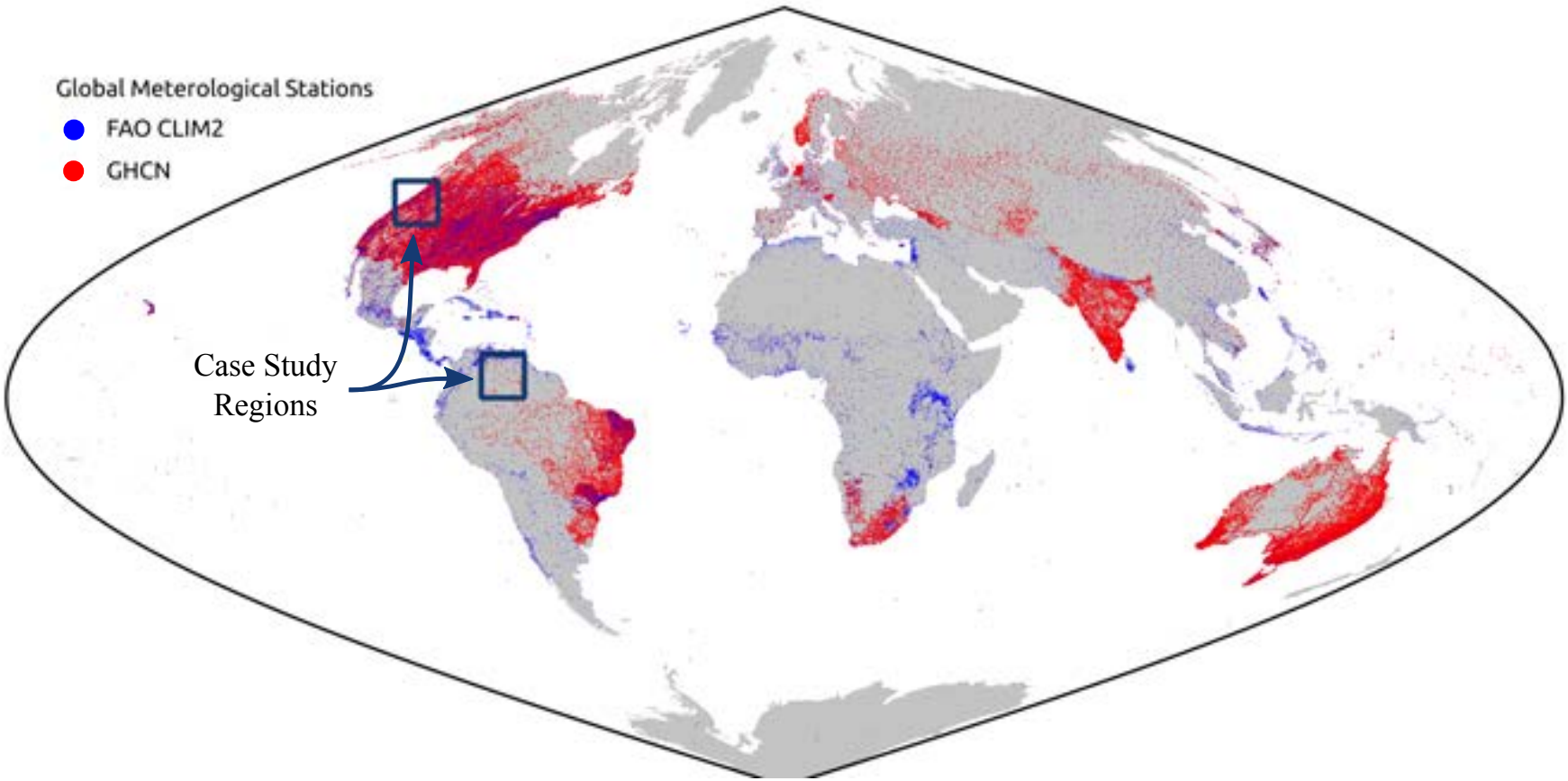
Do the continuous cloud metrics from MOD06 improve predictive accuracy of interpolations?

Using MOD06 will require moving and processing ≈140TB of swath data

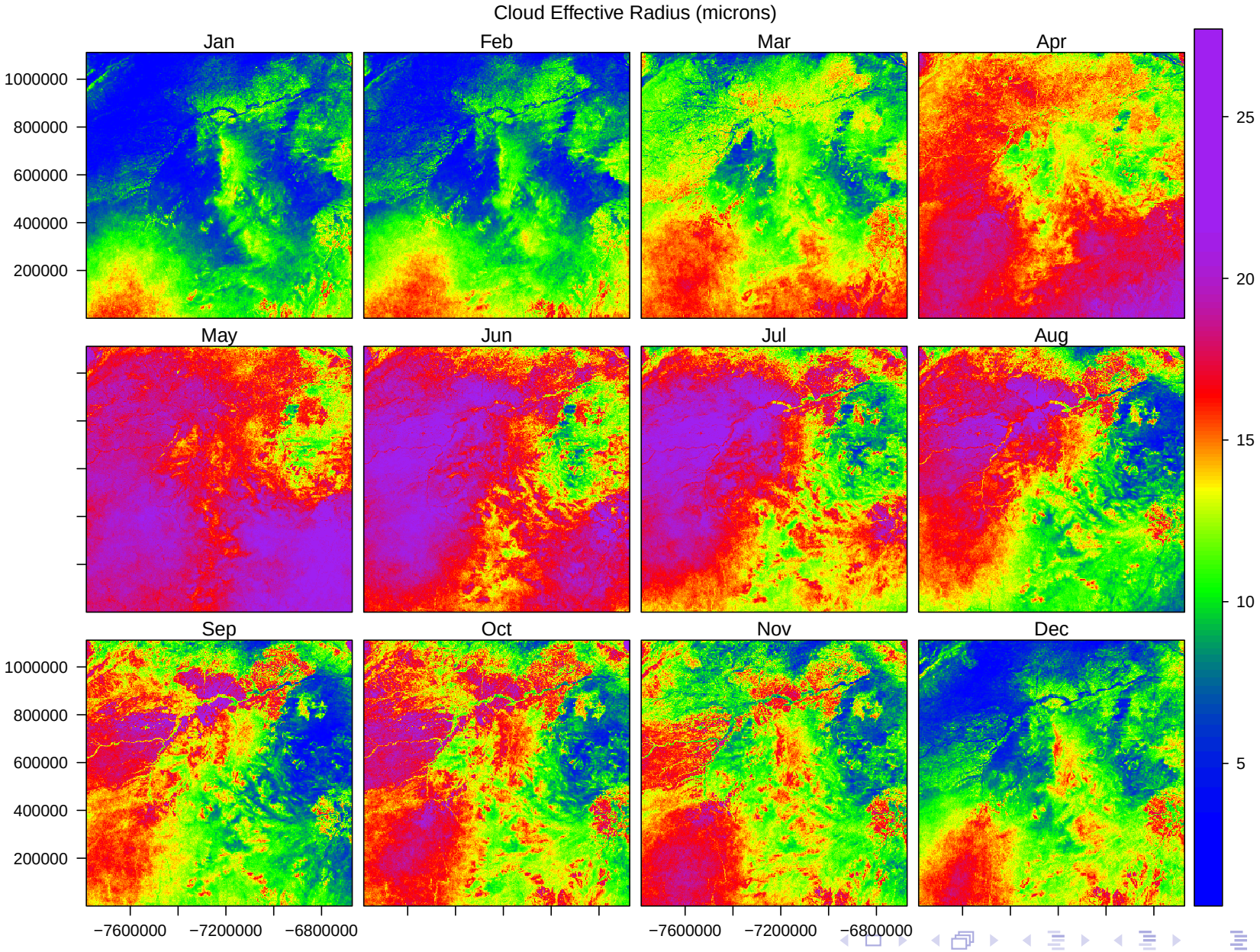
MOD06 Cloud Product Layers



Case Studies: Oregon and Venezuela



MOD06 Summary - Venezuela (h11v08)



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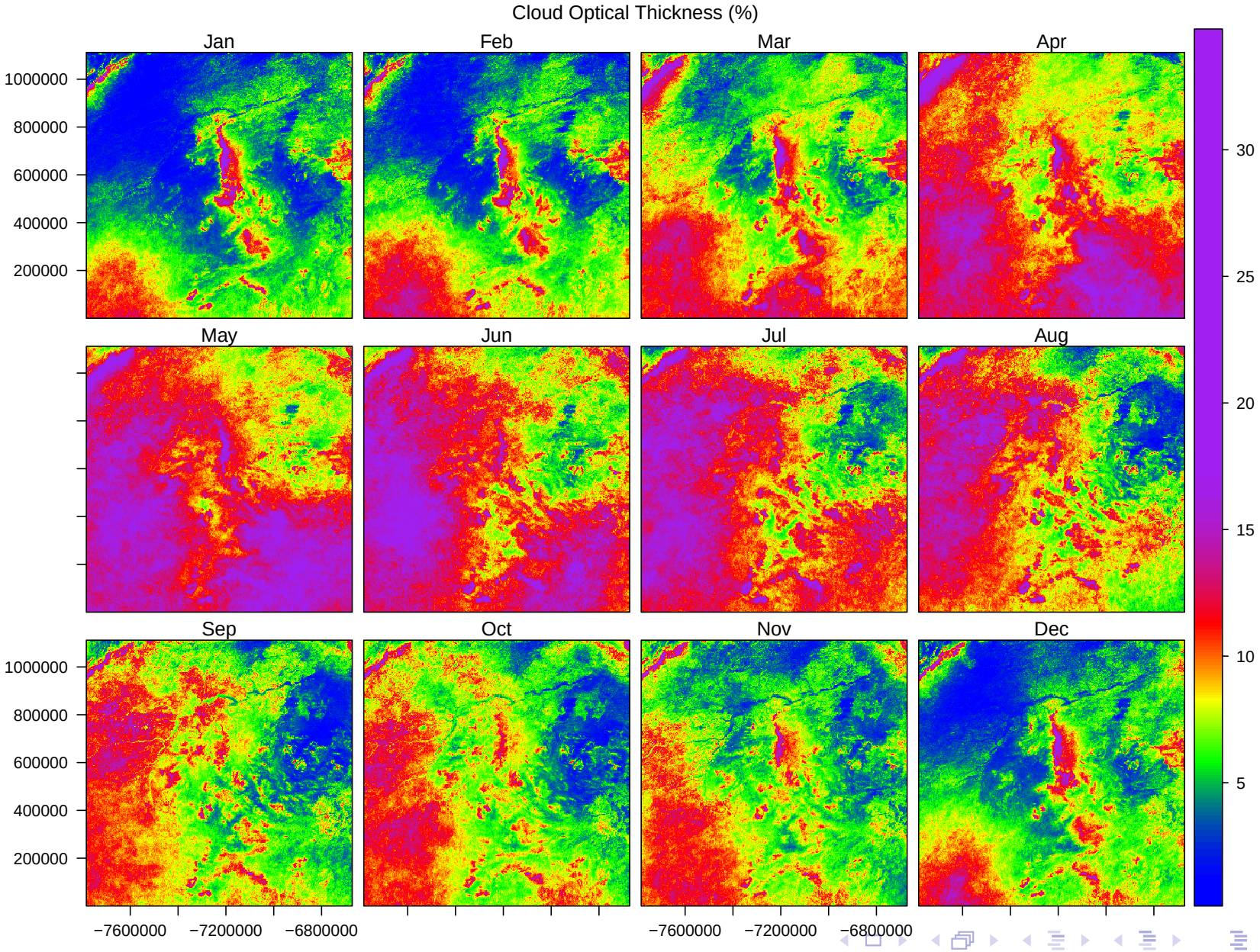
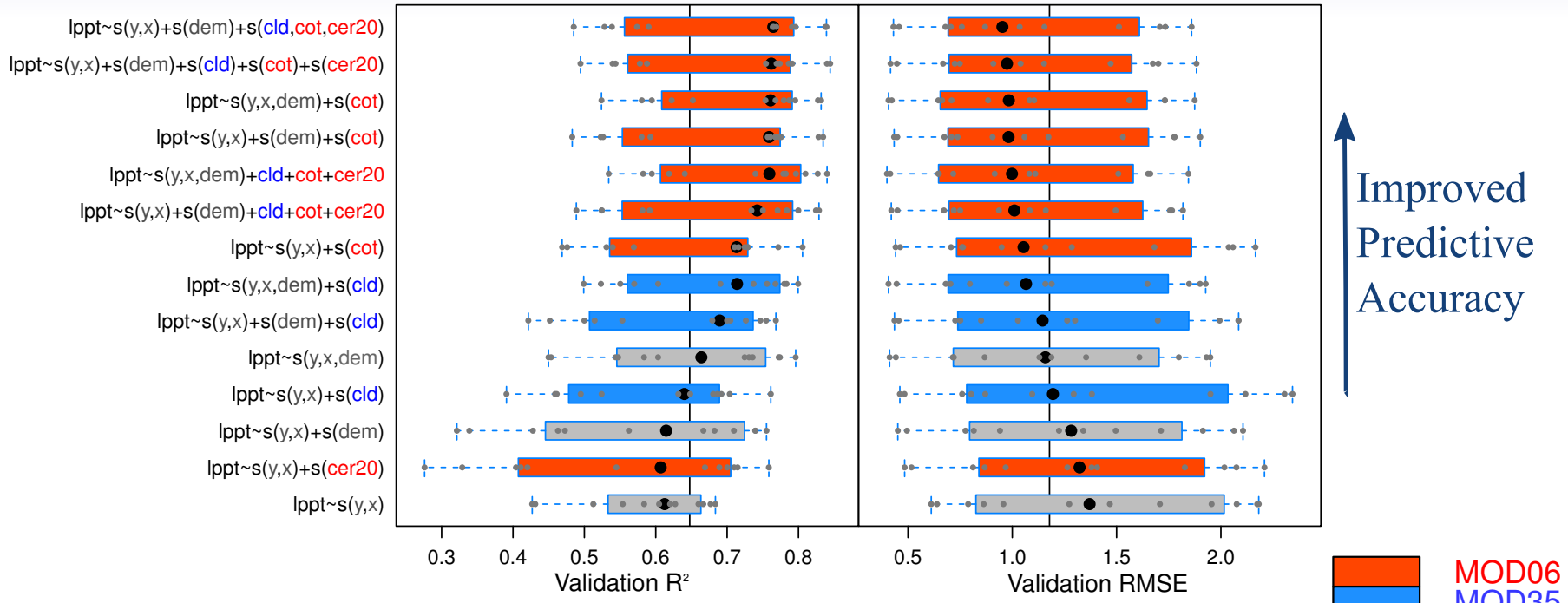


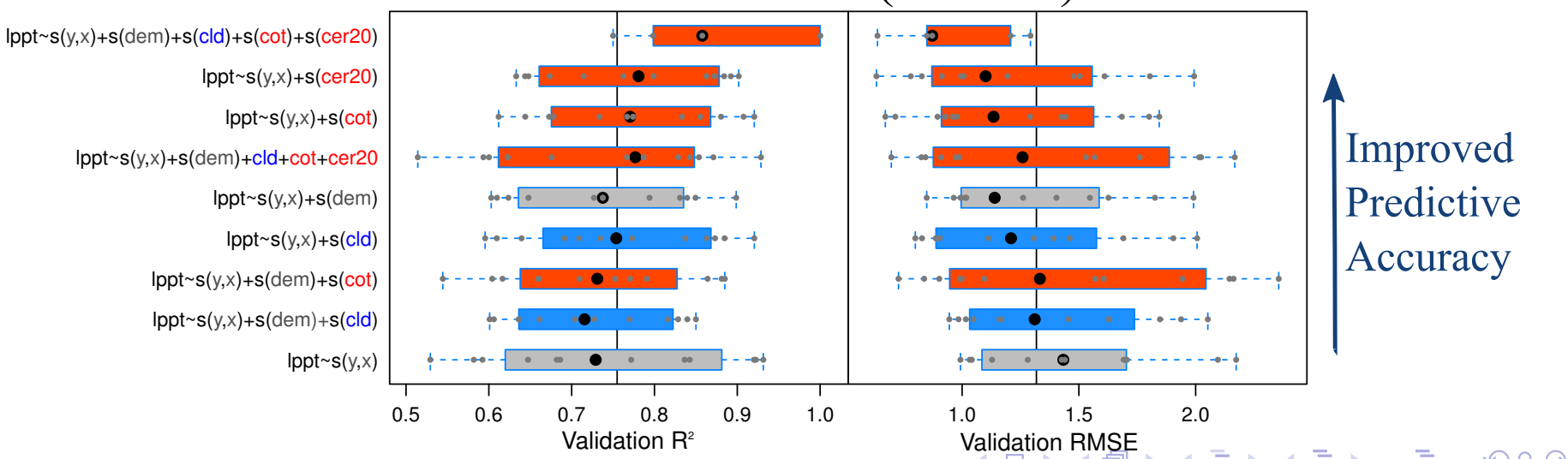
Do the continuous cloud metrics improve predictive accuracy of interpolations?

- Monthly climatologies from GHCN
- H09V04 (Oregon) and H11V08 (Venezuela)
- GAMs including X, Y, & elevation, plus MOD35 and MOD06
- Validation: repeated random 10% sub-sampling $\rightarrow$ R^2 & RMSE.

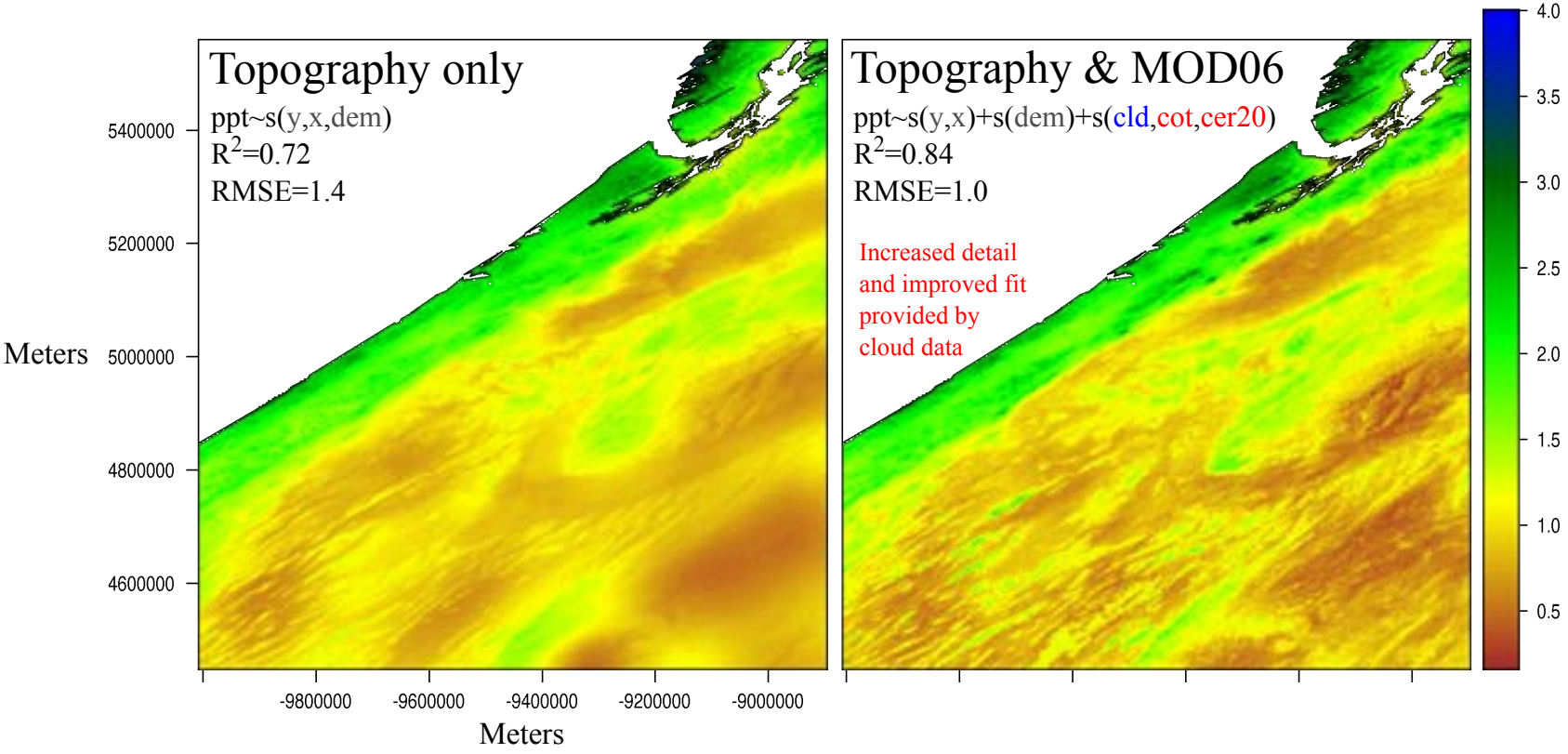
Pacific Northwest (h09v04)



Venezuela (h11v08)

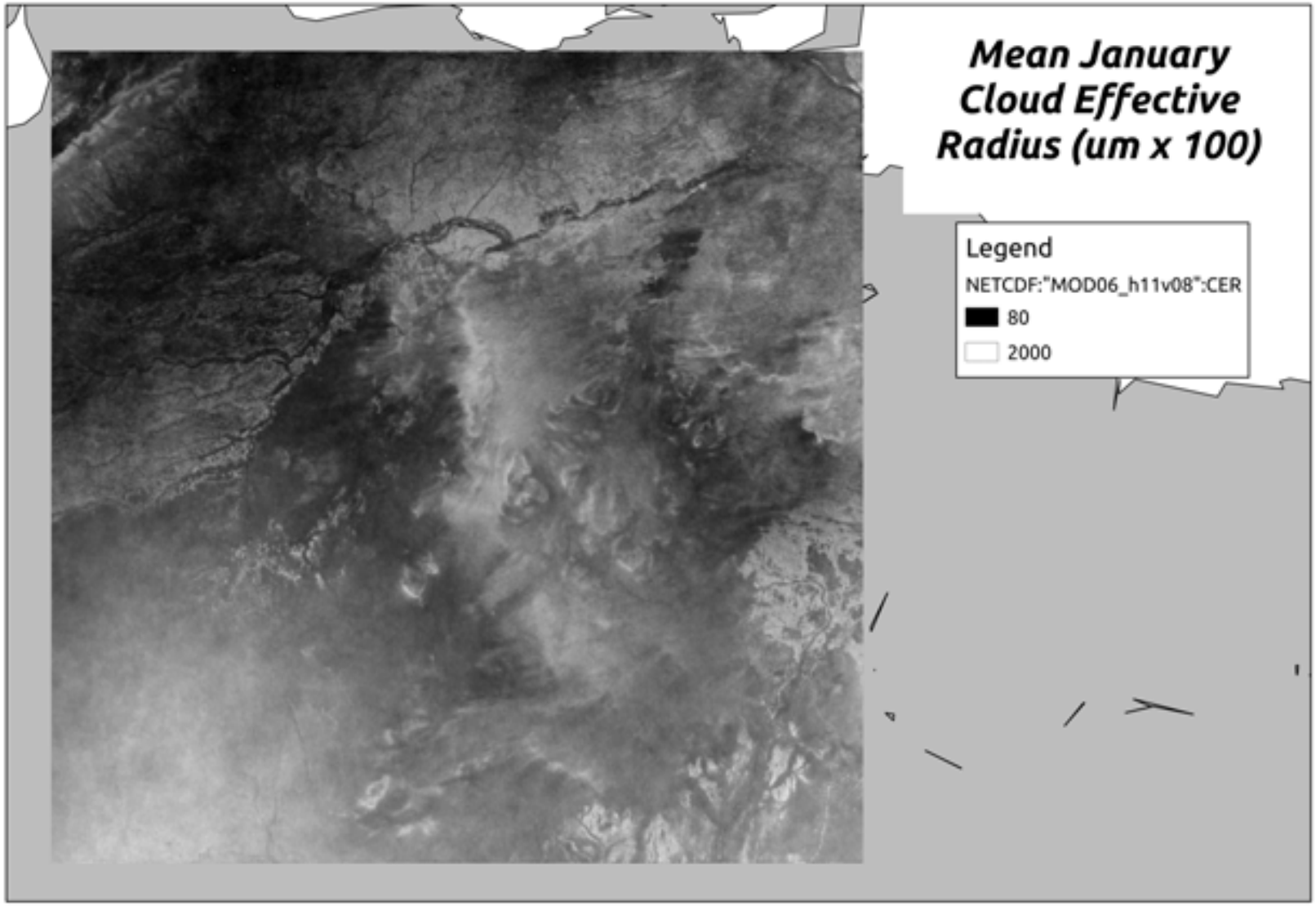


MOD06 → Improved Predictions & Spatial Detail

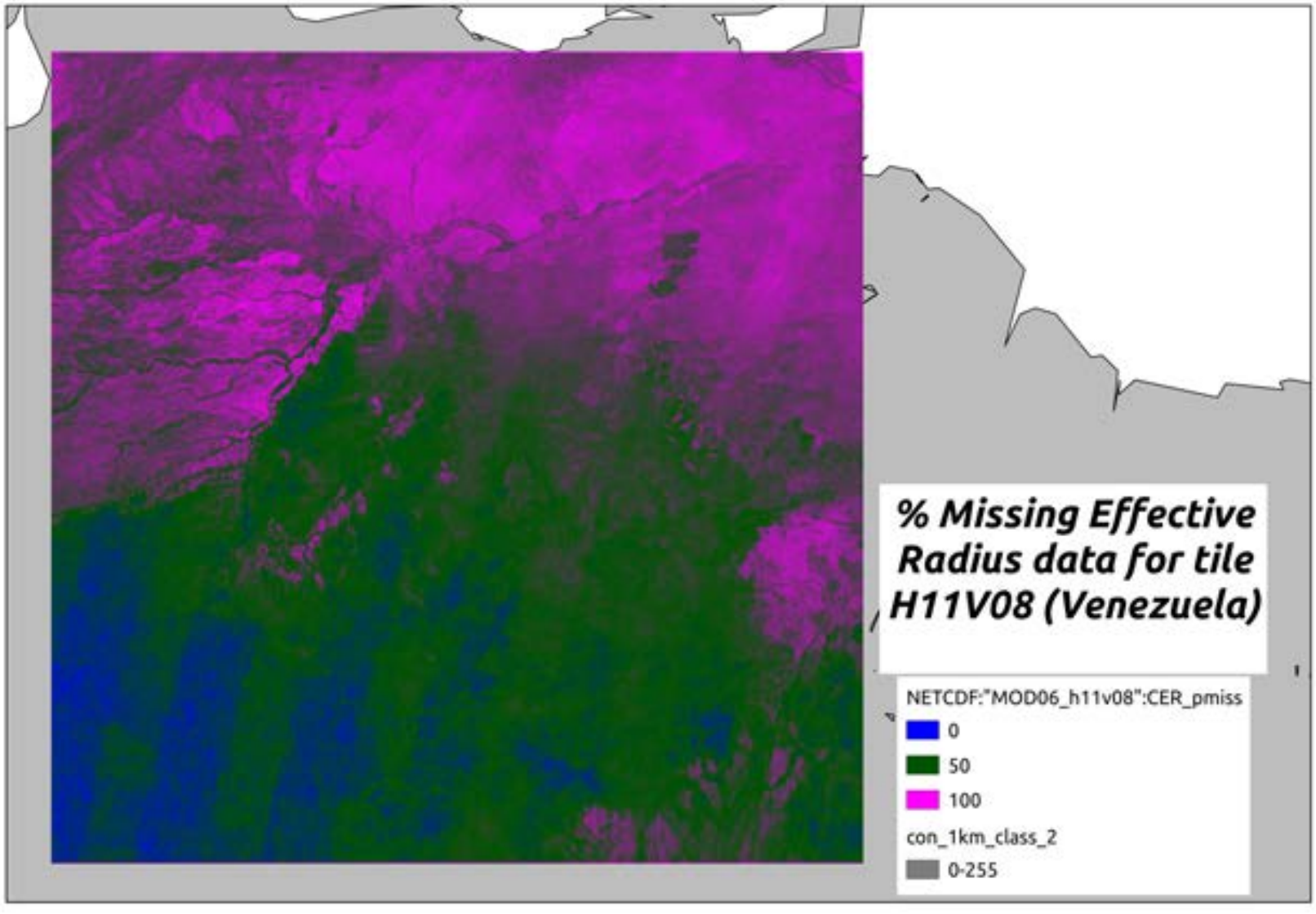


Predictions for mean March precipitation (H09V04) using a GAM with elevation (left) and MOD06 cloud parameters (right).

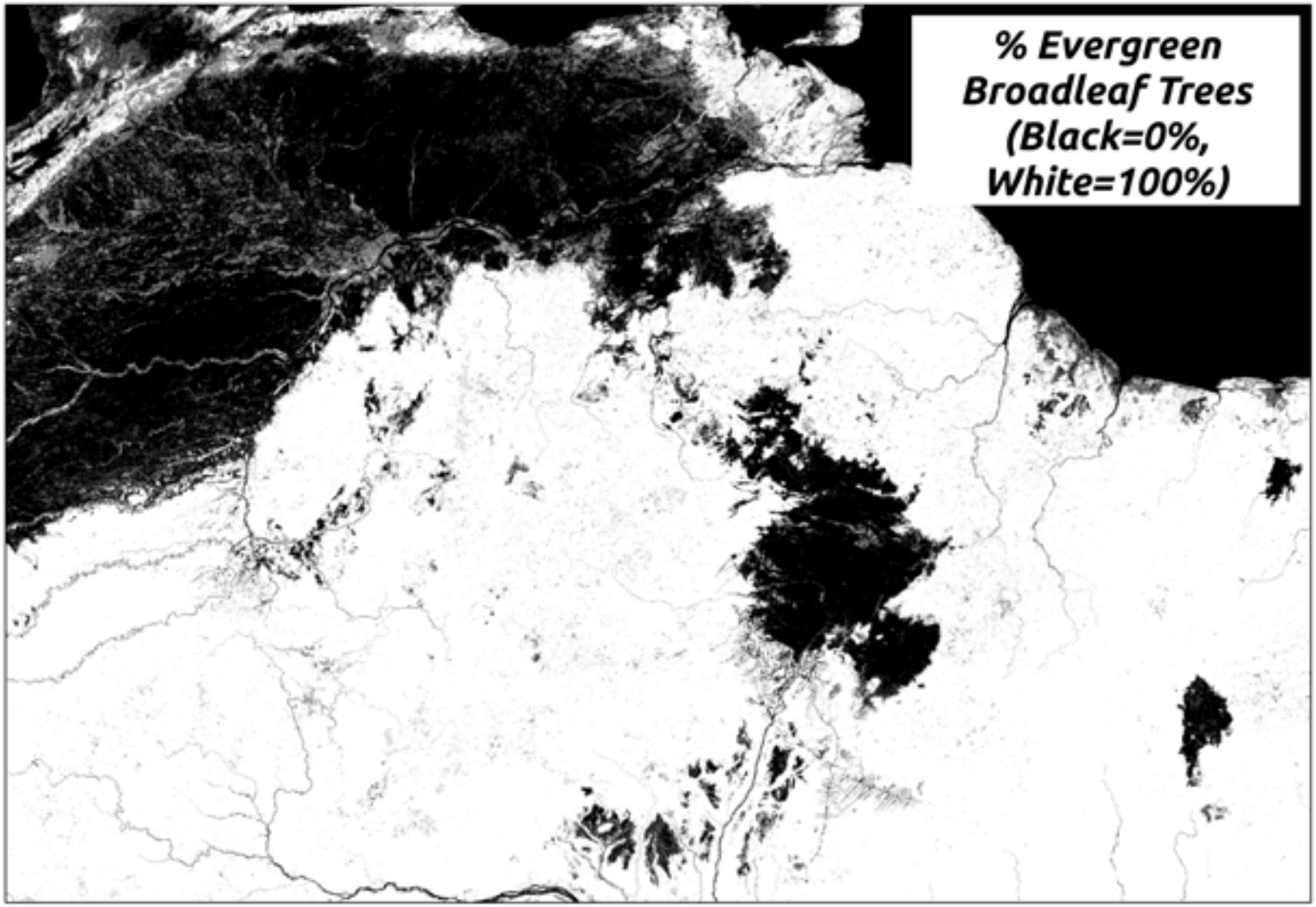
MOD06 Missing Data Problem



MOD06 Missing Data Problem



MOD06 Missing Data Problem



Summary

1. Continuous cloud metrics improve interpolation vs. topography and cloud mask
2. Missing MOD06 data needs to be resolved

Additional Regions: What's needed?

1. Region size (tiles too small...)
2. Single workflow for temperature and precipitation
   - Separate climate-aided process into climatologies and daily anomalies.
3. Define working projection
   Sinusoidal→Behrmann
   Sinusoidal→Other→Behrmann
4. Global co-variate data (topography, distance to coast, etc.)
   - Standardized 1km grid for all products (elevation, land cover, climate, etc.)
5. Station database:
   - GHCN, FAO, and other daily/monthly data
   - Annotate stations with co-variate data