

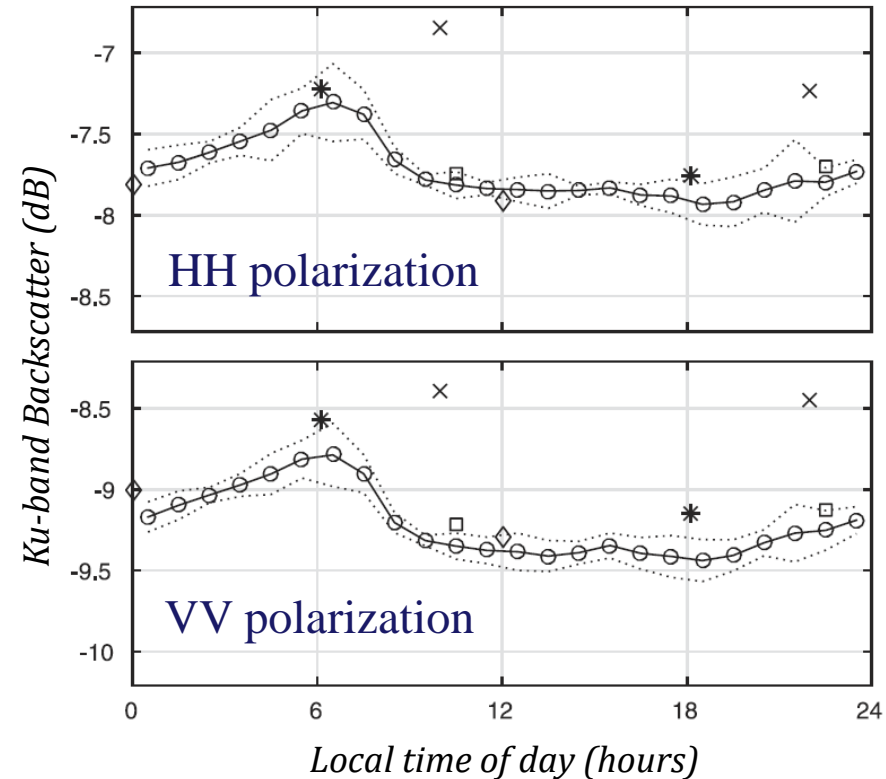
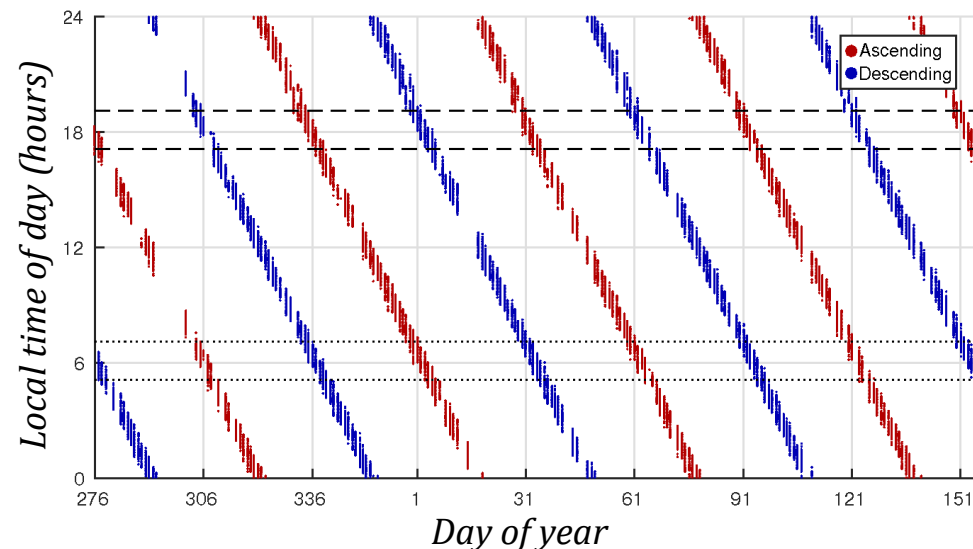


# Calibration and Validation of the RapidScat Scatterometer Using Tropical Rainforests

N.M. Madsen and D.G. Long, IEEE Trans. Geosci. Remote Sensing, 2016, doi: 10.1109/TGRS.2015.2506463.

- RapidScat orbit enables characterization of diurnal Ku-backscatter response of the Earth
- Using tropical rain forest and diurnal corrections, we now cross-calibrate prior scatterometers to generate a consistent multi-decade backscatter climate record
- Will lead to improved scatterometer wind climate record as well as improved scatterometer ice and vegetation climate records

(below) RapidScat is the first wind scatterometer in a non-sun-synchronous orbit. Over a period of a month, it observes every point in its swath at a variety of local-time-of-days.



(above) Mean diurnal backscatter response of the Amazon Rainforest from RapidScat (circles). Dotted lines indicate standard deviation of monthly averages. Mission averages for RapidScat, SeaWinds (square) and OSCAT (diamond) are normalized to QuikSCAT (\*) incidence angles. NSCAT (X) mission averages made for backscatter within  $2.5^\circ$  of the nominal QuikSCAT incidence angles.