

Joe Mascaro

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BERG AUDITORIUM
100 LIFE SCIENCES BLDG



DAILY MONITORING OF THE LAND SURFACE OF THE EARTH

Planet is an integrated aerospace and data analytics company that operates the largest fleet of Earth-imaging satellites. With more than 140 cube-sats now in orbit, Planet is collecting approximately 50 million square kilometers of imagery per day, or 1/3 of the land surface of the Earth (3-5m per pixel, in red, green, blue and near infrared spectral bands). Later in 2017, Planet's constellation will image the entire land surface of the Earth on a daily basis. Due to investments in cloud storage and computing, approximately 75% of imagery collected is available to Planet's partners within 24 hours of capture through an Application Program Interface. This unique dataset has enormous applications for monitoring the status of Earth's ecosystems and human activity. Through our Ambassadors Program*, Planet has made data available for researchers in areas as disparate as human rights monitoring in refugee camps, to assessments of the impact of hydroelectric installations, to tracking illegal gold mining in Amazon forests, to assessing the status of the cryosphere. We will share early results from Planet's research partner network, including enhanced spatial and temporal resolution of NDVI data for agricultural health in Saudi Arabia, computation of rates of illegal deforestation in Southern Peru, estimates of tropical forest carbon stocks based on data integration with active sensors, and estimates of glacial flow rates. We synthesize the potentially enormous research and scientific value of Planet's persistent monitoring capability, and discuss methods by which the data will be disseminated into the scientific community.

**Penn State has recently gained access to Planet's daily images through the Ambassador program for all of Kenya and our RockSprings Experimental research farm. We are collecting data with multispectral cameras on drones in both locations with the goal of testing how well satellite data predicts crops yields in developing and developed world farm settings. Joe will be here all day Tuesday and we will host a workshop in the Huck/MSO on the data. Please email David Hughes (dph14@psu.edu) if you would like to join.*