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Professor Garrison's research interests lie in the development of new instruments, algorithms and missions for Earth remote sensing, utilizing Global Navigation Satellite Systems (GNSS) and other "Signals of Opportunity" (SoOps). He performed some of the earliest theoretical and experimental work (1996-2002) demonstrating that reflections of GNSS signals contain valuable information on surface scattering and that this information could be used for remote sensing, particularly in oceanography. That seminal research sparked subsequent development of, arguably, the first entirely new Earth remote sensing instrument concept to be proposed in decades. Research by multiple institutions around the world culminated in NASA's selection of the CYGNSS mission, scheduled for a 2016 launch. Prof. Garrison is on the science team for CYGNSS, which will observe tropical storm development using GNSS reflections from a constellation of 8 micro-satellites. Or

More recently, Prof. Garrison is the principal investigator on the Signals of Opportunity Airborne Demonstrator (SoOp-AD), a prototype instrument for passive remote sensing of root-zone soil moisture (RZSM) using reflections of P-band (230-270 MHz) satellite transmitters.

Professor Garrison works closely with the Earth science and applications community at Purdue and internationally. He is on the executive committee for the Purdue Climate Change Research Center (PCCRC) and a faculty affiliate of the Ecological Sciences and Engineering (ESE) program.

Website: https://engineering.purdue.edu/AAE/people/ptProfile?resource_id=1422