



Biospherical Instruments has developed a novel instrument that is capable of measuring light over 14 decades of dynamic range. The prototype sensor, known as the Ocean Color Underwater Low Light Advanced Radiometer (OCULLAR), resulted from a collaboration between Biospherical Instruments and NASA/GSFC scientist Dr. Stanford Hooker. The instrument pairs a miniature photomultiplier tube (PMT) with a Biospherical microradiometer coupled to a silicon photodetector. A microprocessor embedded in the microradiometer activates the PMT when low-light conditions are detected, and is powered off under higher light conditions where the silicon detector microradiometers take over. The first field campaign using the prototype successfully collected data under moonlit skies, including using a BioSHADE (shadowband) accessory to measure direct and diffuse components of moonlight. The prototype successfully proved the concept but had only one channel. A commercial product with 7 channels is currently under development. The new system will support ocean color research using both Sun and Moon as light sources.

An article featuring OCULLAR was published by NASA. It can be found is [here](#).