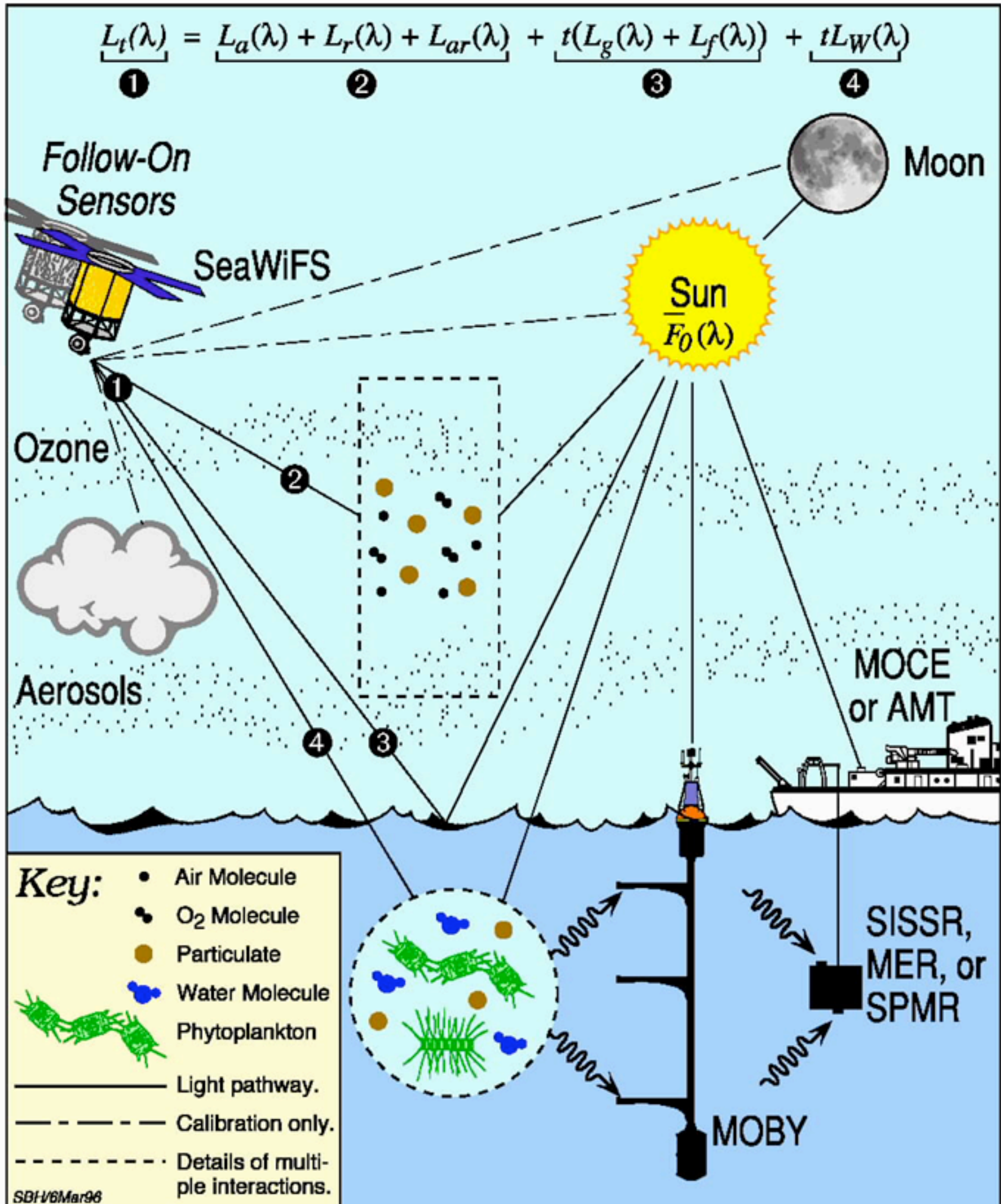




Code 614
S. Hooker

The Ocean Color (SeaWiFS) Calibration and Validation Paradigm

The original perspective for calibration and validation sampling was on the open ocean. A combination of time (buoy) and space (ships) series was anticipated, with the former providing primarily calibration data, and the latter ensuring global (Case-1) validation. The execution of the paradigm was based on a single principal investigator deploying to the field with one commercial instrument (except MOBY).





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For the Future (and the Recent Past): "What's Wrong with that Picture?"

The future is likely to require a truly global perspective, which means the coastal ocean and marginal seas will be very important. In this context, the deficiencies of the original paradigm (open-ocean, Case-1 waters) need to be considered:

- No coastal ocean (Case-2) sampling (or even an agreement on where the coastal ocean begins and ends);
- No alternative measurement platforms (towers, ferries, small boats, etc.);
- No inherent optical properties (IOPs);
- No above-water radiometry (e.g., SIMBAD);
- No instrumentation development except MOBY with few adaptive (i.e., modular) commercial designs (e.g., SeaOPS and LoCNESS);
- No along-track sampling (towed vehicles, pumped systems, etc.);
- No automated systems except MOBY (e.g., SeaPRISM);
- No biological component except chlorophyll *a* concentration (e.g., primary productivity);
- No atmospheric component (e.g., AERONET);
- No explicit calibration pathways except for the satellites (each PI was responsible for calibrating the instruments being used);
- No standards laboratories (NIST, DHI, etc.);
- No laboratory measurements except for the determination of the chlorophyll *a* concentration (e.g., spectrophotometry), and HPLC was not required;
- No community-approved protocols and what emerged is no longer supported or inclusive of all likely measurements;
- No uncertainty requirements except water-leaving radiances and chlorophyll *a* concentration;
- No analysis of uncertainties (e.g., SIRREX, DARR, or SeaHARRE);
- No international (agency-to-agency) collaborations except at the PI level;
- No centralized data archive, and what emerged (SeaBASS) was based on processed data;
- No performance metrics for submitted data; and
- No capability for data reprocessing except for the satellite data.

Given the reality of shrinking budgets and more limited resources, the future strategy will have to be based on a community-approved prioritization of these many components. Ultimately, the inclusion of many of these elements will only be possible if some of the currently-funded activities are scaled back or eliminated.