The OSS method is a simple and flexible approach to radiance modeling originally developed for the real-time processing of NPOESS/CrIIS data. OSS-based models have been produced for the airborne NAST-I and AIRS instruments as well as for microwave sensors. The monochromatic treatment of the radiative transfer in OSS confers the ability to directly model non-positive ILS (such as interferometric functions) and to accommodate different observer altitudes (for airborne applications). In addition, it greatly simplifies the computation of analytical Jacobians and makes it possible to model scattering effects in an accurate and computationally efficient way. An overview of the theoretical basis and examples of applications of the OSS method will be presented. More details will be given in a companion poster.