Comparing Modeled Column-average CO_2 to Greenhouse Gases Observing SATellite (GOSAT) Atmospheric CO_2 Observations from Space (ACOS) 3.4 X_{CO2} Product

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In this poster, we'll compare a variety of atmospherically modeled CO_2 products, based upon both best guess surface flux products and atmospherically optimized (inversion) products, relative to the latest GOSAT ACOS X_{CO2} product. Results are summarized over large Transcom regions from the period of 2009 - 2012. We'll include products from CIRA as well as European products (Monitoring Atmospheric Composition & Climate) and two different CarbonTracker products, all of which optimize CO_2 fluxes based upon surface observations of CO_2. Initial comparisons are promising with large scale space/time agreement between the models and the satellite data, although certain residual features require more investigation and research.
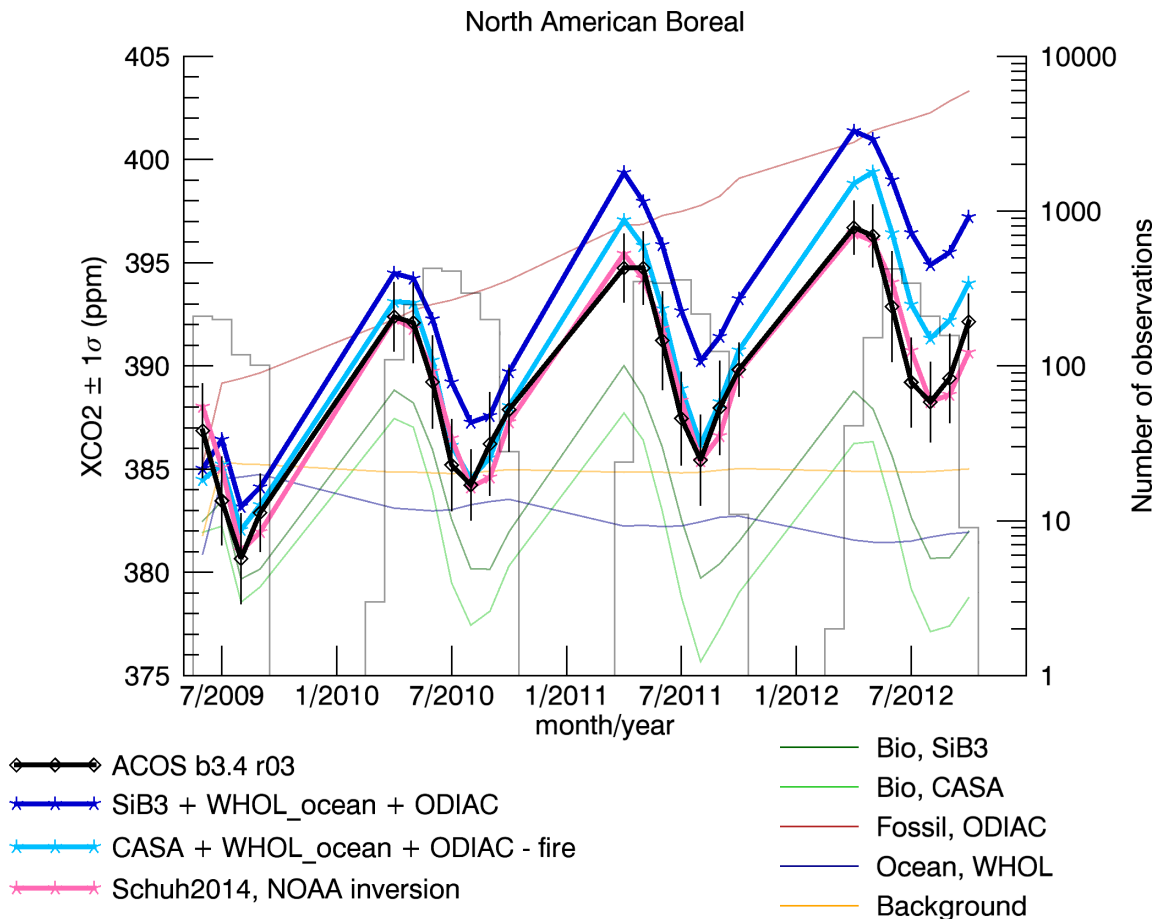

Figure 1. Time series of ACOS b3.4 r3 data against tracers and inversion results. Carbon dioxide tracers (right side of legend) form the fixed and a priori components of the inversion results (left side of legend). Total a priori carbon dioxide time series for the SiB3 and Carnegie-Ames-Stanford Approach (CASA) models are also shown on left side of legend as well. Note that the ocean tracer forms an inherent temporal sink, fossil tracer forms an inherent source and biosphere models are close to being balanced (zero flux) annually. Inversion results are based upon NOAA surface data.