

Forward modeling (GEOS-Chem)

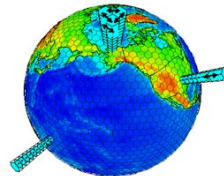
Source

Transport

Chemistry

Convection, etc.

Receptor



Measurements



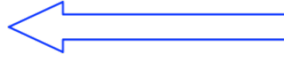
Optimizing
Source



Transport adjoint
(reverse winds)



Chemistry adjoint
(self-adjoint)



Adjoint for
convection, etc.

Adjoint analysis

(sensitivity of receptor with respect to source)