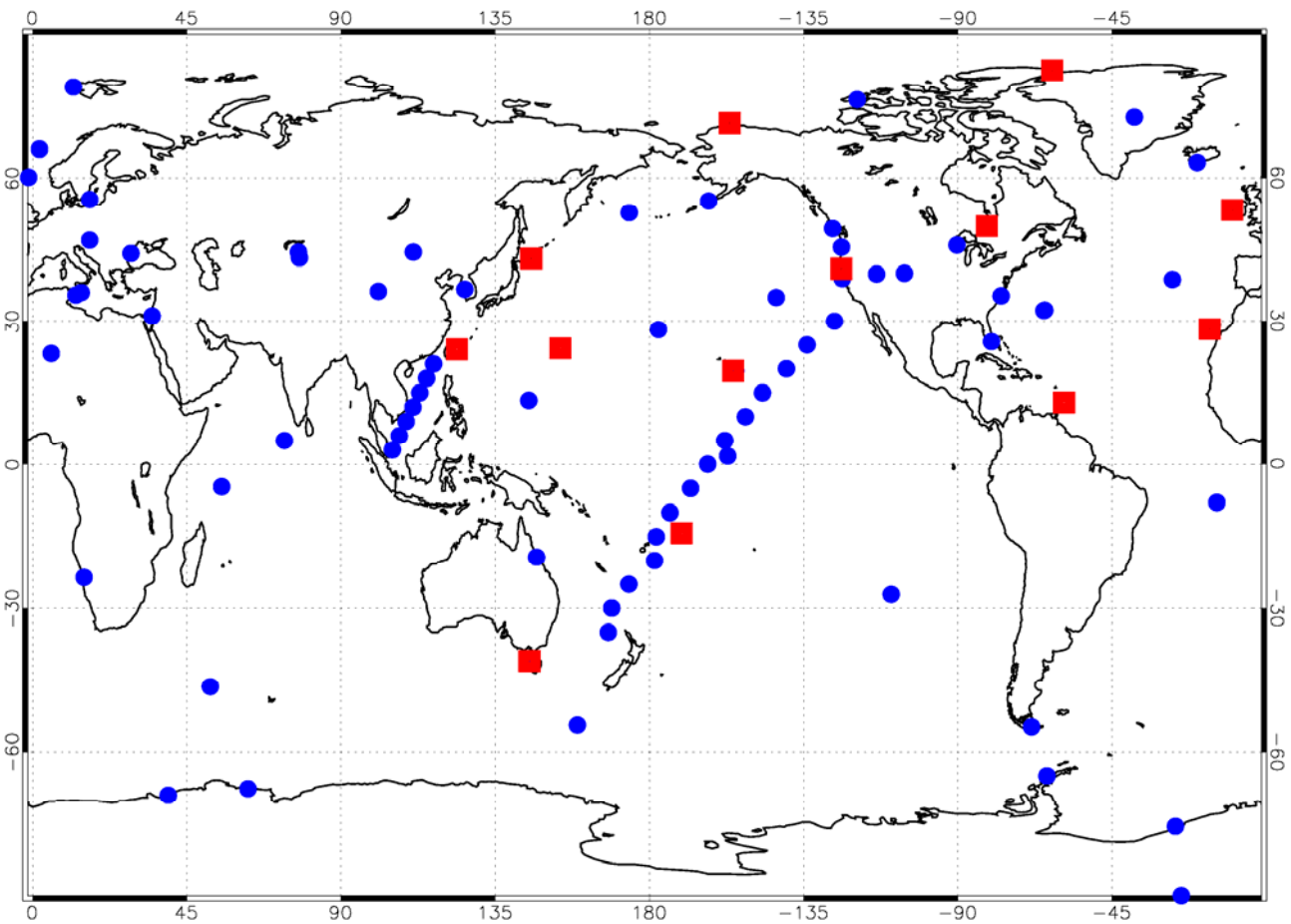
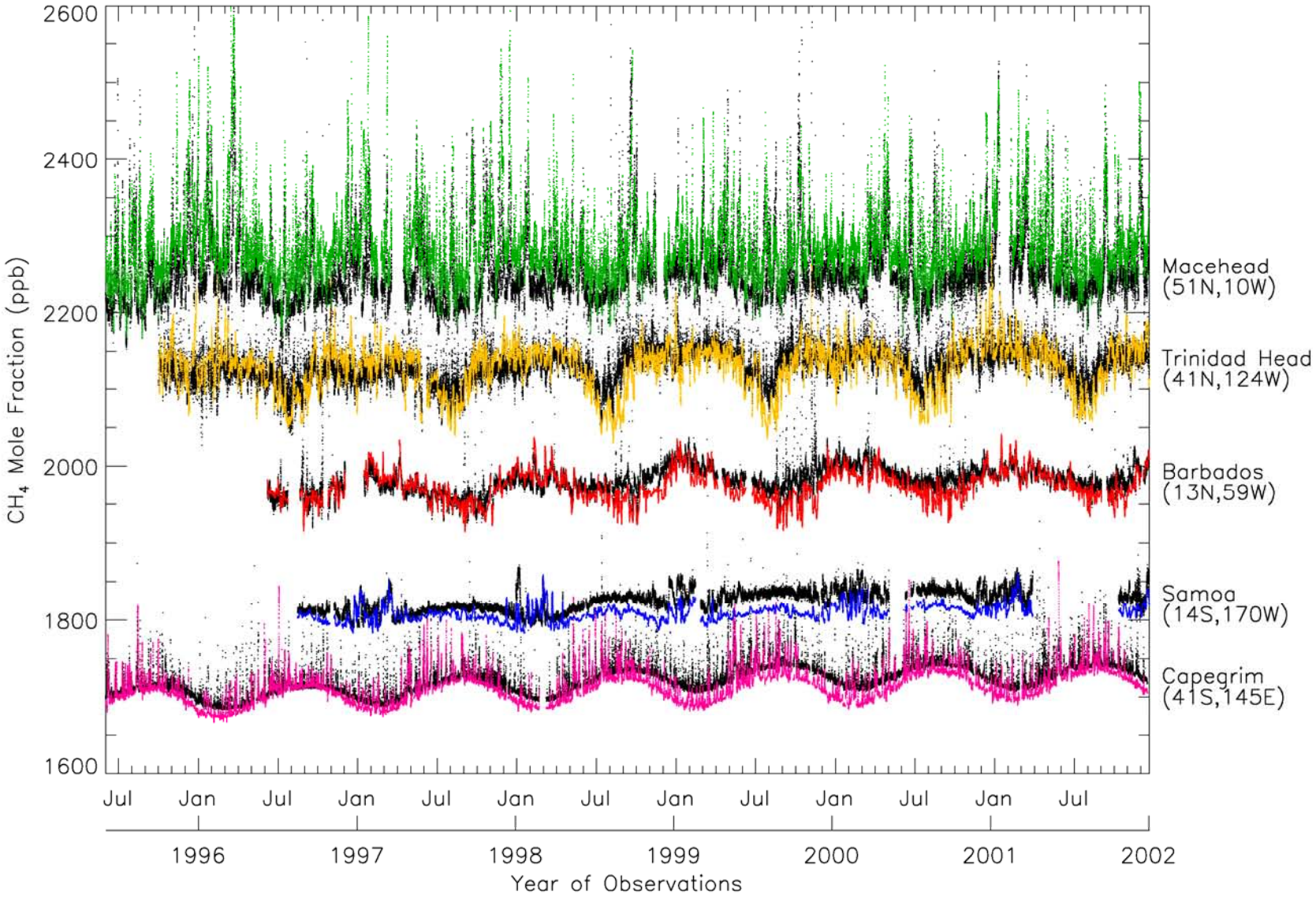
(c) Methane Simulations using MATCH: Y. Chen, Ph.D. Thesis, MIT,2004, contd.

CH_4 Observational Sites (1996-2001)



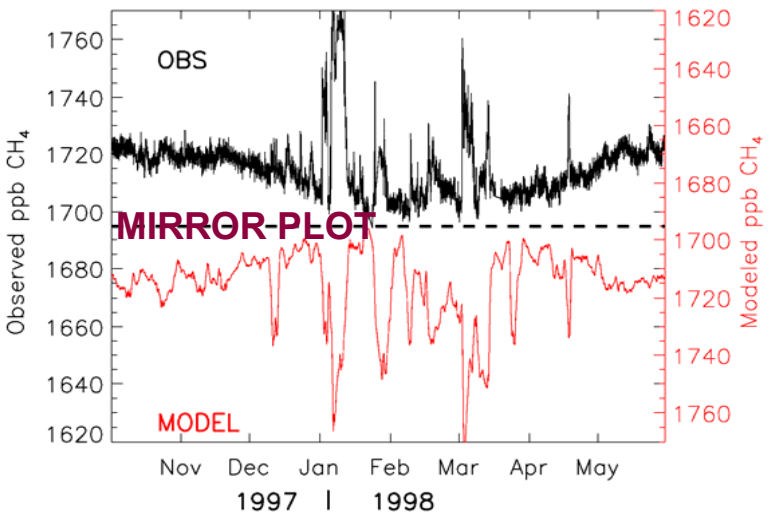
Ref: Chen & Prinn, J. Geophys. Res., 2005, doi:10.1029/2004JD005542

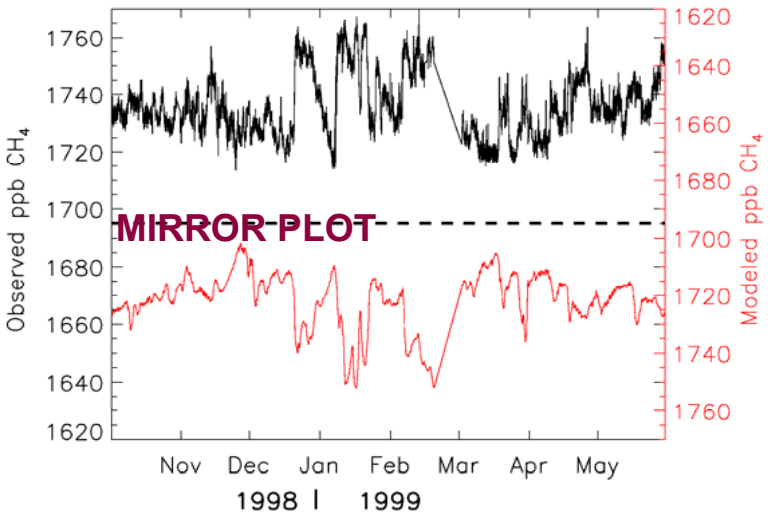
Reference Simulation (color) vs. Observed (black) CH_4 at 5 AGAGE Sites

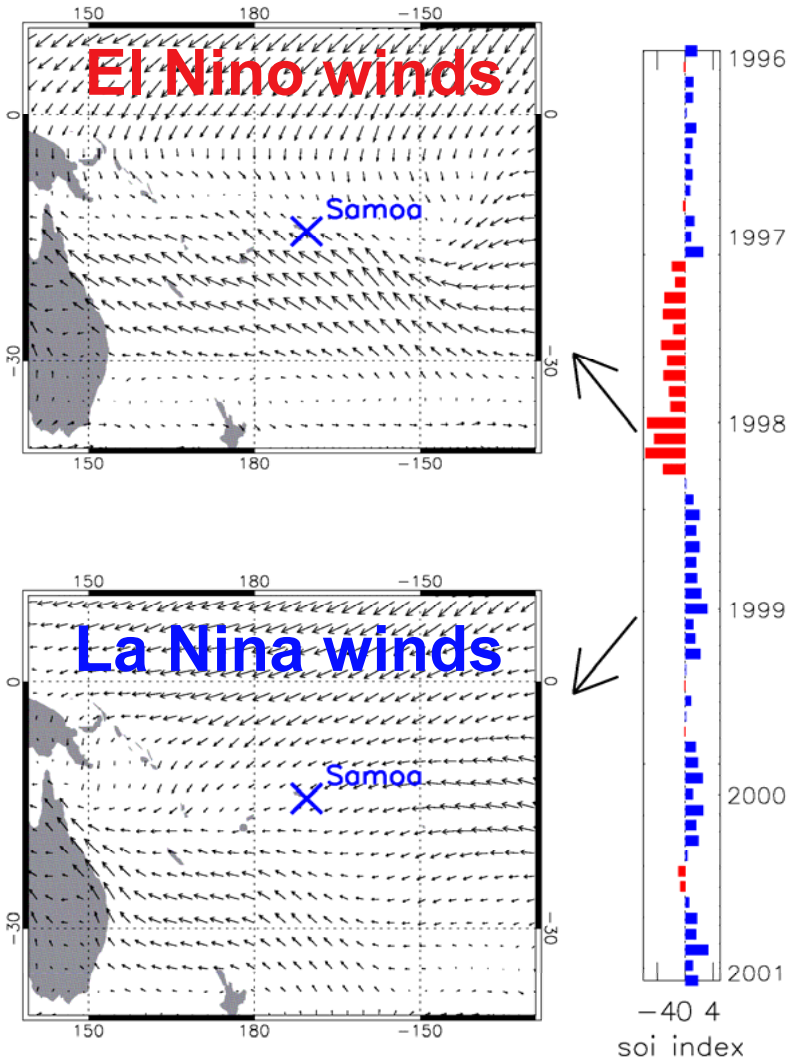


MATCH Simulates Effects of ENSO Transport on CH_4 at Samoa

AGAGE observations versus MATCH model at Samoa

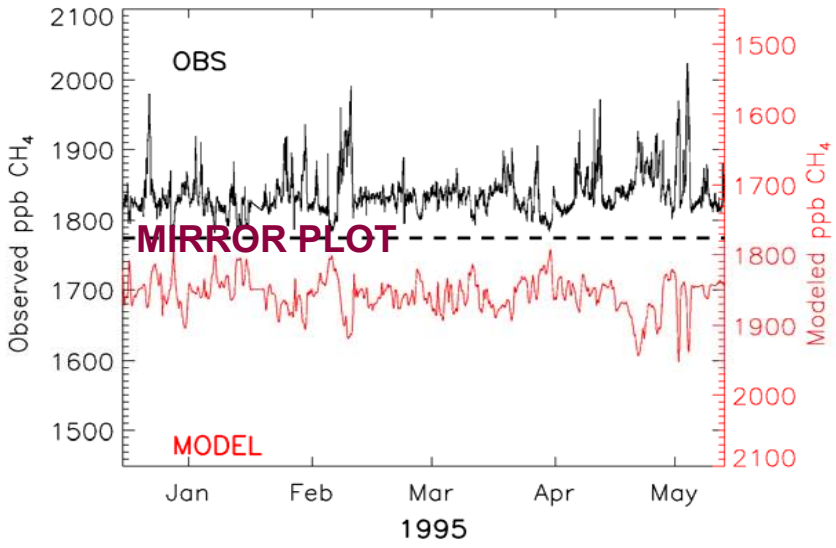


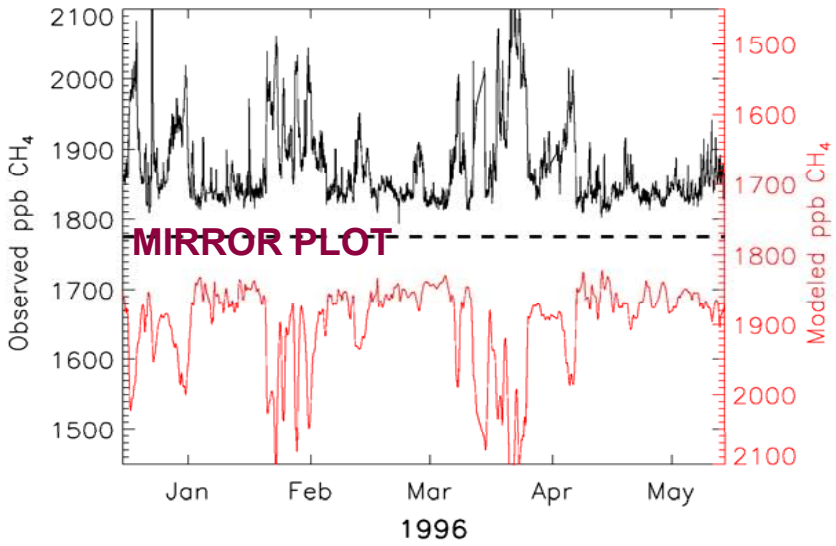


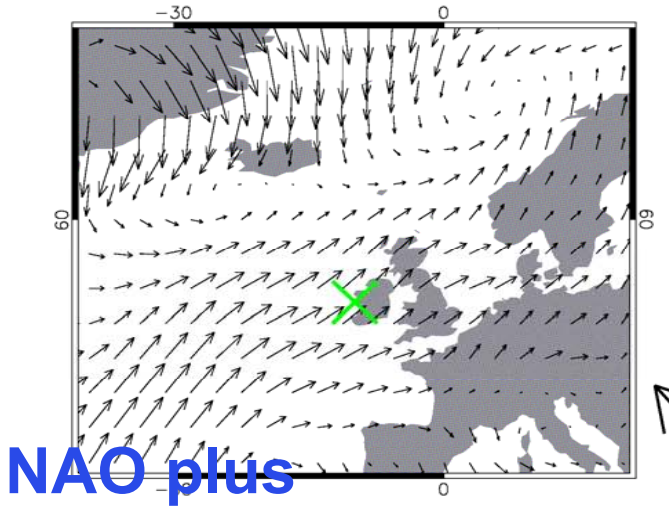


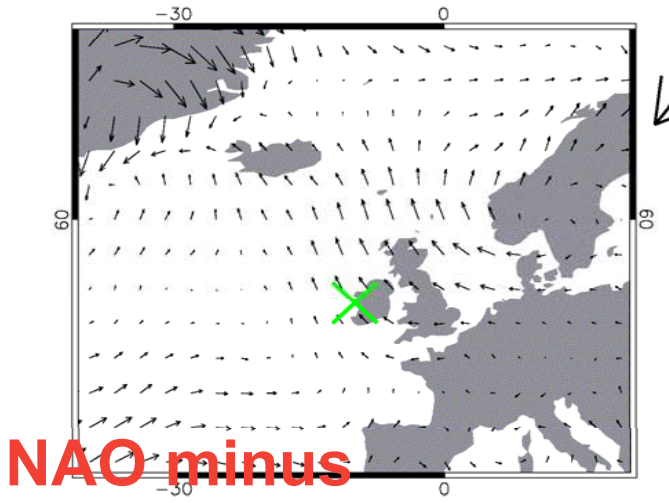
MATCH simulates effect of North Atlantic Oscillation on CH_4

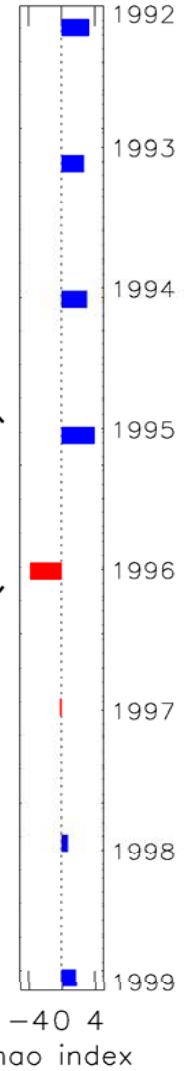
AGAGE Observations versus MATCH Model at MaceHead, Ireland



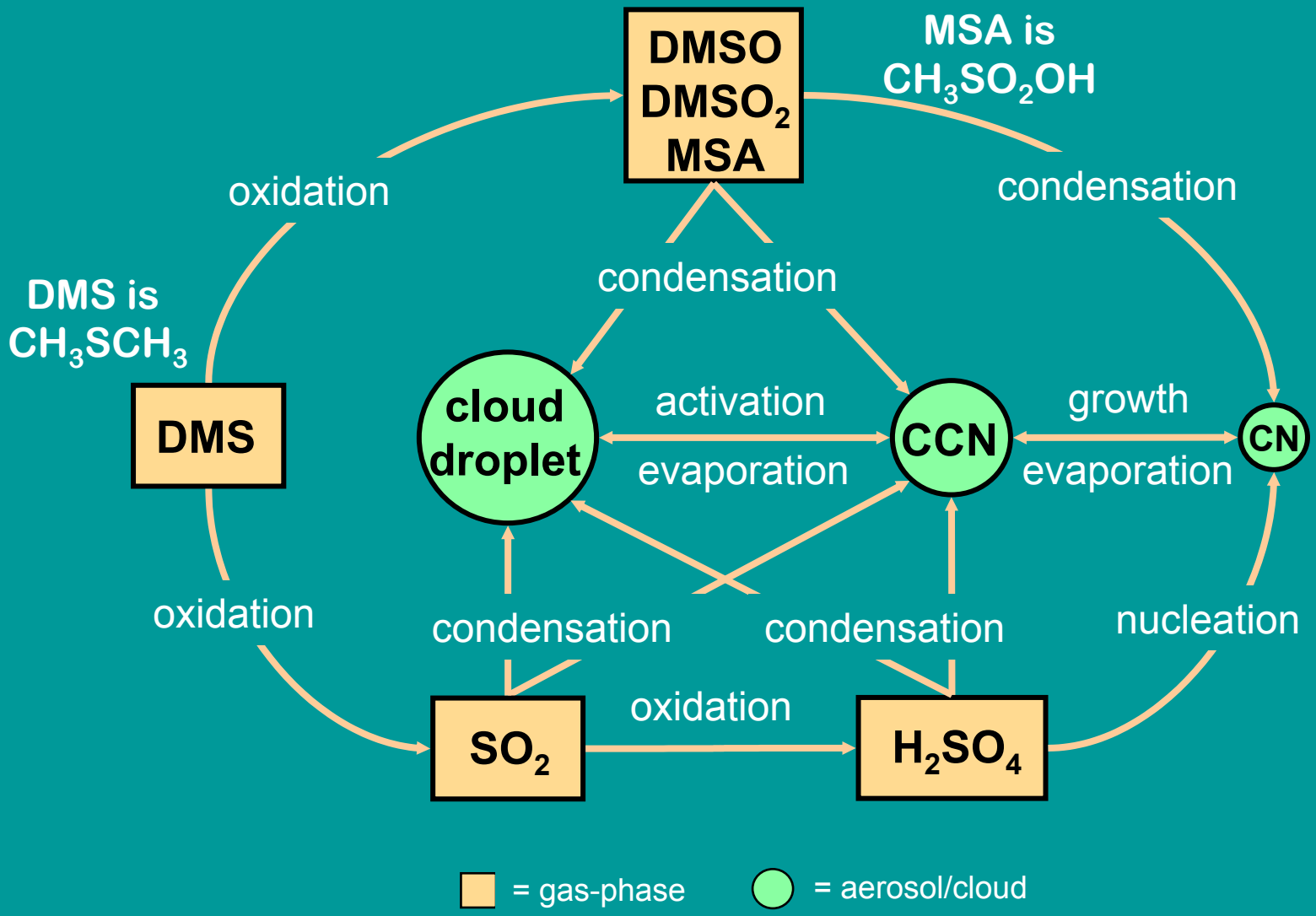








(d) Dimethyl Sulfide-Aerosol Connections

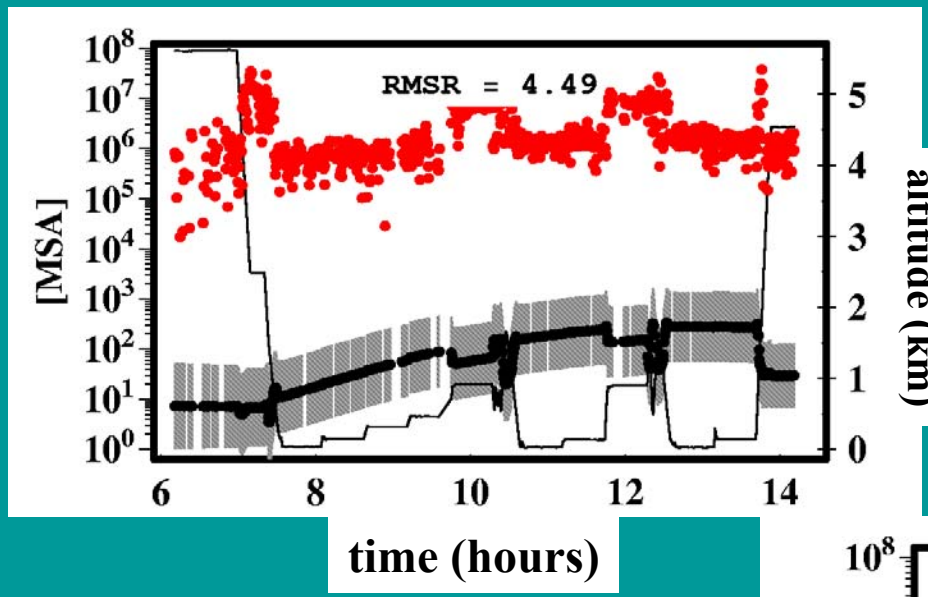


Ref: D. Lucas, Ph.D. Thesis, 2003, http://web.mit.edu/cgcs/, CGCS Report # 71,

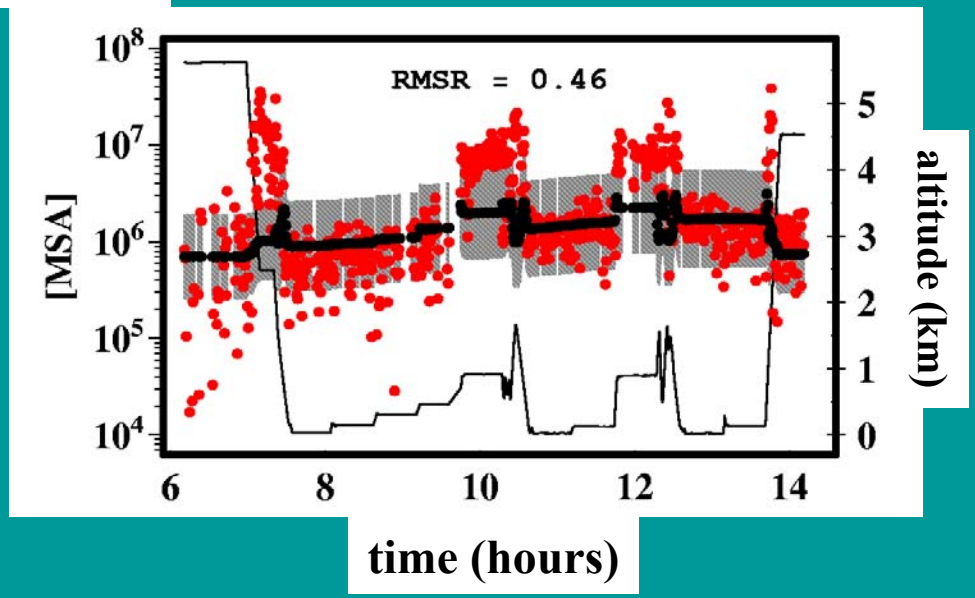
Also: Lucas & Prinn, J.G.R., 2002; G.R.L., 2003; A.C.P., 2005; J.G.R., 2005

Motivation for new chemical mechanisms

Original mechanism does a poor job simulating aircraft data (red dots)

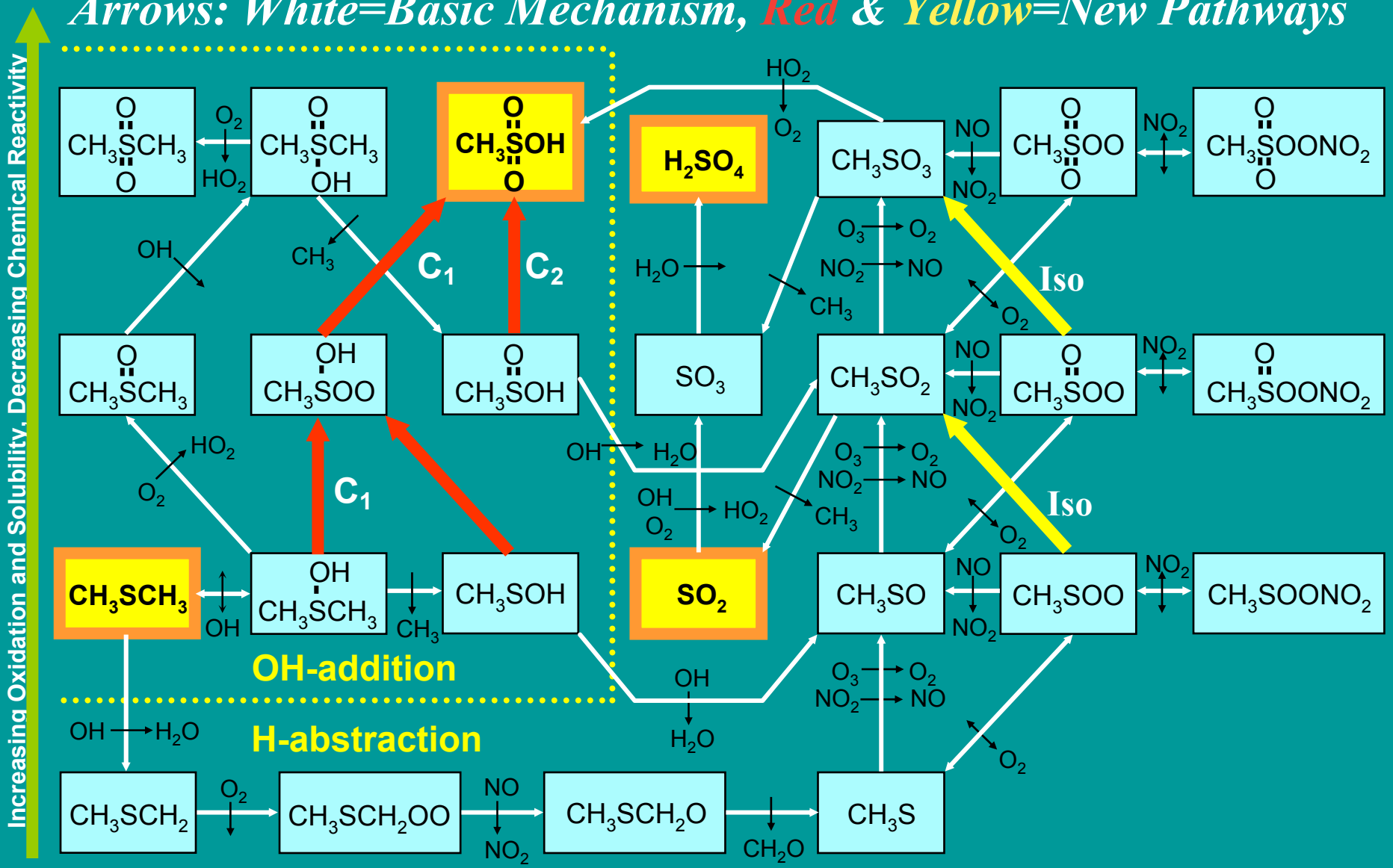


Modified mechanism does a better job (model is black dots with grey model error bars)



DMS Oxidation Mechanism

Arrows: White=Basic Mechanism, Red & Yellow=New Pathways



MATCH MODEL RUNS:DMS Emissions

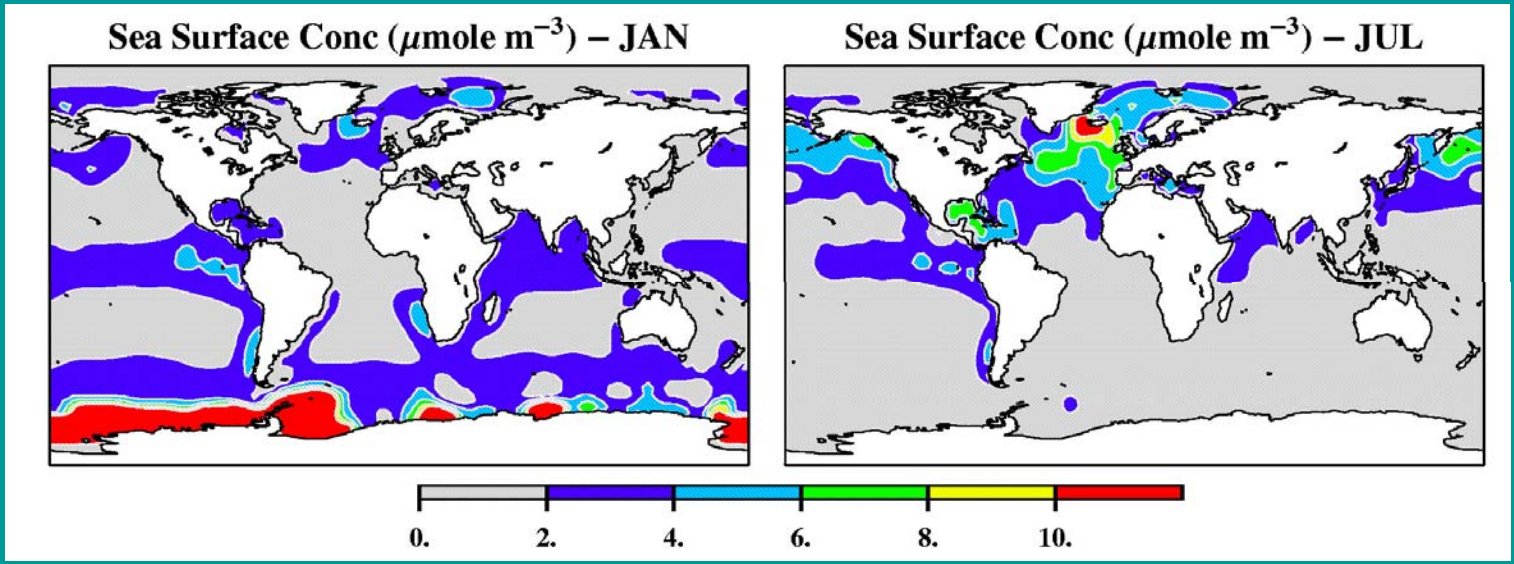


Image removed due to copyright considerations.

See Figure 1. Lucas, D.D. and R.G. Prinn, Sensitivities of gas-phase dimethylsulfide oxidation products to the assumed mechanisms in a chemical transport model, Journal of Geophysical Research, 110, D21312, doi:10.1029/2004JD005386, 2005.