

Resources

Personnel and budget (py=person year).

WP4.1: PostDoc at UNI Research: 1.21 py for C cycle analysis, PostDoc at UiB: 0.9 py for partial radiative perturbation analysis, researcher at CICERO: 0.25 py.

WP4.2: PostDoc at UiO: 1.2 py (0.3 in 2011, 0.5 i 2012, 0.4 i 2013). met.no 0.2 py (Seland, Kirkevåg).

WP4.3: Researcher at NR (0.29 py in both 2012 and 2013). Researcher at CICERO 0.1 py. Researchers at met.no 1.06 py (Seierstad, Debernard, Seland, Kirkevåg, Simondsen) in 2013. In kind: WP4.3, contributions from UiB, met.no 0.5 py (Iversen, Seland, Kirkevåg), UiO and UNI Research.

WP. 4.2

WP4.2–Regional response and non-linearity

Deliverable:

D4.4: Manuscript on regional climate responses and non-linearities (*Dec 2013*).



Relation to CMIP5 simulations

- Several of the CMIP5 simulations already performed will/are being used to address the objective of WP4.2
 - The transient historic simulations with all forcings
 - GHG and aerosol forcing only

Plans for set-up of additional experiments

- 100 year control simulation from CMIP5 pre-industrial control simulation
 - Fully coupled system: Chemistry-aerosols-radiation-climate
 - CMIP5 resolution, consider higher resolution?
 - Test radiative imbalance and drift
 - Start: September 2012.
- Pre-industrial to 2010 transient simulation, ensemble of 3-5 members
 - Provide input to AC&C model comparison (focus on concentration change and radiative forcing in ESMs)
- Branch of simulations from 1960 without selected short-lived climate forcers
 - BC, Sulphate and ozone
 - Diagnose radiative effects
 - Sample data with sufficient temporal resolution to analyse for impacts on circulation (cf. Module 2)

Coupled Aerosol-Chemistry–Climate Twentieth-Century Transient Model Investigation: Trends in Short-Lived Species and Climate Responses

DOROTHY KOCH,^{*,+} SUSANNE E. BAUER,^{*} ANTHONY DEL GENIO,[#] GREG FALUVEGI,[@]
JOSEPH R. MCCONNELL,[&] SURABI MENON,^{**} RONALD L. MILLER,[#] DAVID RIND,[#]
RETO RUEDY,[@] GAVIN A. SCHMIDT,[#] AND DREW SHINDELL[#]

** NASA Goddard Institute for Space Studies, and Columbia University, New York, New York*

NASA Goddard Institute for Space Studies, New York, New York

@ Sigma Space Partners LLC, New York, New York

& Desert Research Institute, Reno, Nevada

*** Lawrence Berkeley National Laboratory, Berkeley, California*

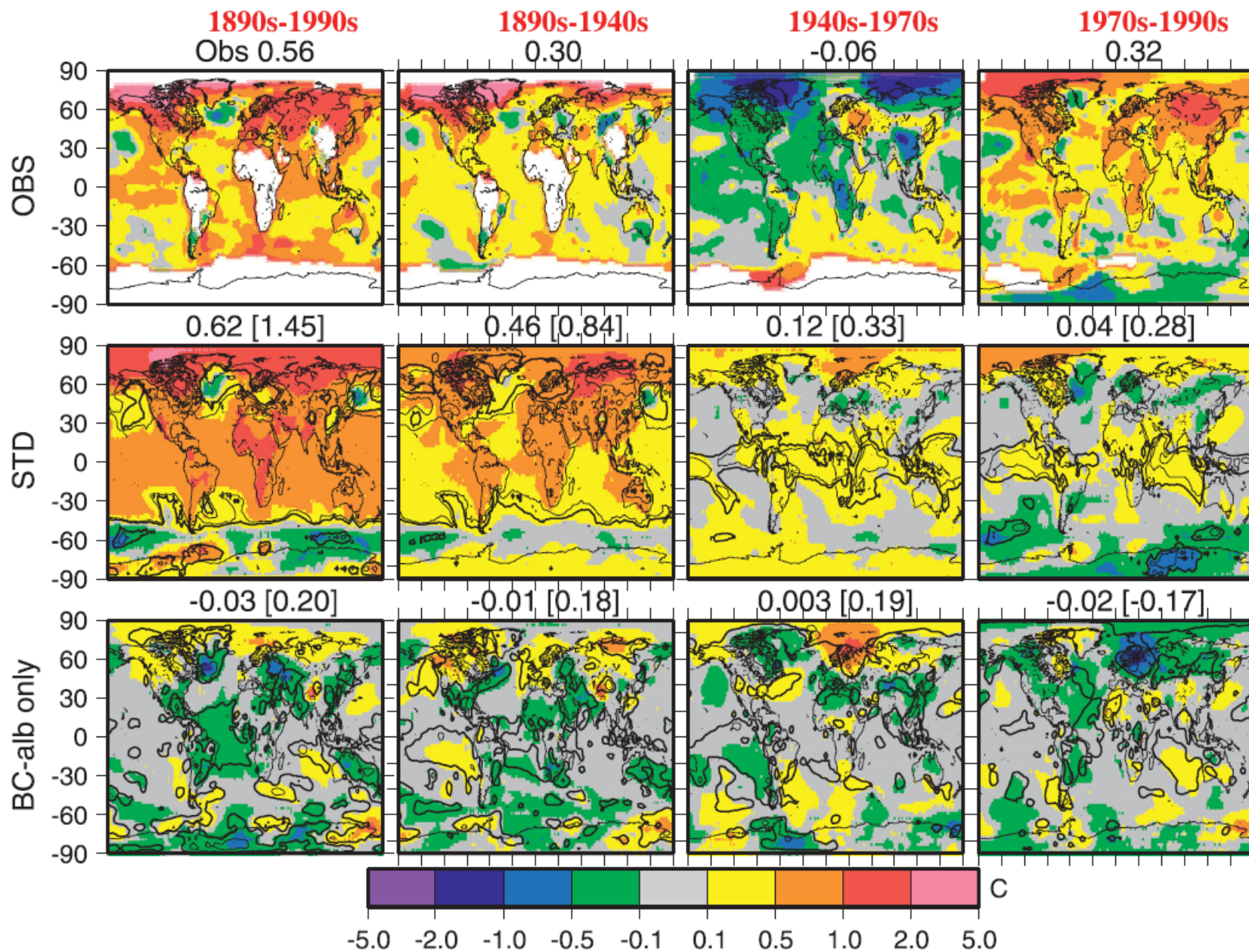


FIG. 11. Surface air temperature changes, (top) observed from GISS surface air temperature analysis (white is missing data), (middle) in STD model, and (bottom) due to the BC-albedo effect (STD minus BCALB). SAT changes for decadal means are given from (first column) 1890s to 1990s, (second column) 1890s to 1940s, (third column) 1940s to 1970s, and (last column) 1970s to 1990s. Global (Arctic) mean values are above each panel. For the model changes, heavy and light contours show 90% and 95% for STD and 75% and 90% significance for the BC-albedo effect, according to a Student's t test.