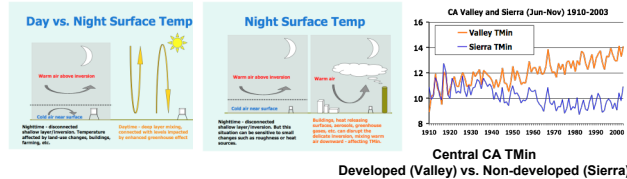


# An Alternative View Proposal for IPCC AR5

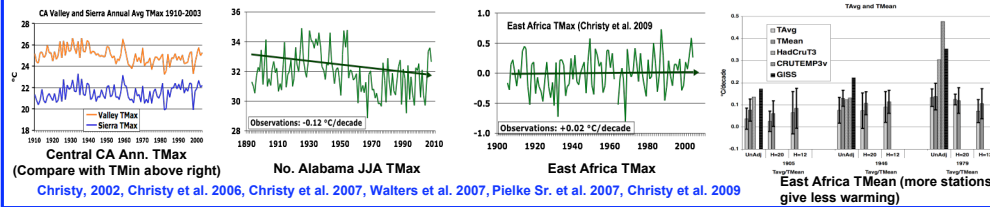
John R. Christy, University of Alabama in Huntsville

## Mean Surface Temperature: a Poor Metric for measuring response of climate to enhanced GHGs

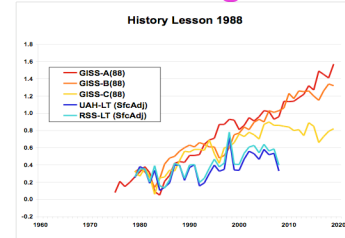
$T_{Mean} = (T_{Max} + T_{Min})/2$ .  $T_{Min}$  is heavily influenced by surface development and changing atmospheric constituents over time. The thermal radiation budget and boundary-layer mixing altered by these changes, introduce higher temperatures.  $T_{Max}$ , though not perfect, is better since its spatial mixing scale is much larger.



"Super-sampled" regions generate  $T_{Max}$  temperature trends near zero while under-sampled methods using  $T_{Mean}$  (e.g. GISS, HadCRUT, NCDC) do not. Thus  $T_{Mean}$  overstates the warming rate by (1) using  $T_{Min}$  and (2) using too few stations.

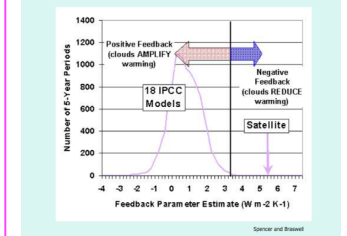


## Climate sensitivity to CO2 Forcing too high in Climate Models



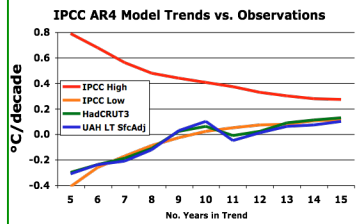
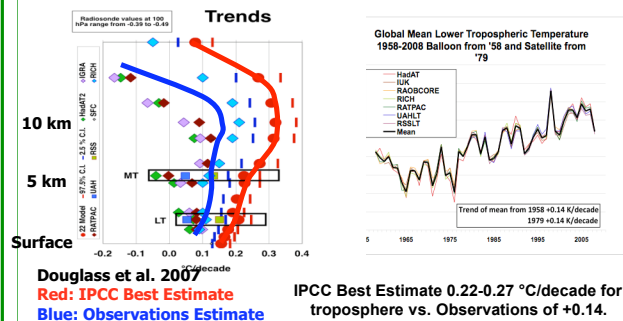
(Left) Hansen projected 3 scenarios in 1988, 2 of which (red, orange) had slightly lower GHG emissions than actually observed over the next 20 years, and one with drastically lower emissions (yellow). The climate sensitivity of the model was so high that all three scenarios, even the one with sharp cuts in emissions, significantly overshoot the observations (lower tropospheric temperatures adjusted for surface comparisons, CCSP 1.1 2006)

(Right) Longwave (LW) and shortwave (SW) feedback parameters ( $W/m^2/K$ ) were calculated for all 5-year periods from 18 IPCC AR4 transient simulations, and also from 5 years of Aqua CERES data. The satellite diagnosis indicated positive LW feedback, right in the middle of the model distribution of similarly computed feedbacks. But the observed reflected solar SW feedback was strongly negative, well outside the range of all 5-year SW feedbacks computed from the models. The total feedback parameter (seen here) is then the sum of both (LW+SW) individual parameters, which is also outside the range of all total feedbacks computed from the models.

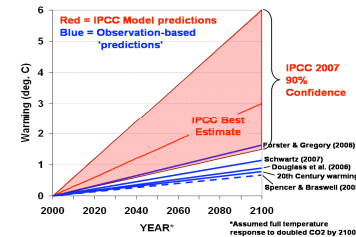


## Modeled climate change temperatures inconsistent with observed changes

When climate models generate the same tropical surface trend value as the observed tropical sfc temperature trend (below left), their upper air trends are significantly different from observations where GHG signal is largest. Global tropospheric temperature trends of the IPCC mid-range estimate (below right) are significantly higher than the mean of observations from seven sources.



Projections of 21 A1B IPCC Climate models' global trends for segment lengths shown (ending in model year 2020 and observation year 2008, HadCRUT3 and UAH LT - sfcAdj). Models' 95% range bounded by red (high) and orange (low). Results show observations are well below the "best estimate" (+0.20°C/decade) and along the edge of the "significantly different" region. Adapted from P. Michaels.



(Left) The range of solutions from the IPCC AR4 climate model simulations (pink). Empirically calculated model projections and current observed trend (blue) which by implication factor in the negative feedbacks of cloud responses. The rate of warming in these empirical models is much lower than the full blown coupled models.

Summary: An Alternative View Section written by well-credentialed climate scientists is needed in the IPCC AR5

If not, why not? What is there to fear?