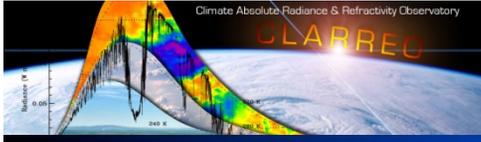


CLARREO Mission Status

- **The CLARREO Project demonstrated readiness to begin Phase A at a fully successful Mission Concept Review in November, 2010**
 - A mature mission architecture that met all science, technical, and cost criteria
- **The Science Definition Team (SDT) was selected in January 2011**
- **In February 2010, the Administration’s FY12 budget removed \$1.2B from the proposed NASA Climate Initiative in the years FY12-15**
 - NASA was directed to not proceed to Phase A for CLARREO in FY11
 - CLARREO was placed in an “Extended Pre-Phase A” from FY12-FY16
- **CLARREO continues to be funded to achieve these goals:**
 - Advancing CLARREO science, including continuation of the SDT
 - Exploring cost-effective alternatives for achieving some portion of the CLARREO science objectives
 - Risk reduction for achieving on-orbit SI-traceability of CLARREO measurements
 - Continued engagement with the user community (GSICS, CEOS) and potential international partners



The CLARREO team remains committed to achieving our important goals

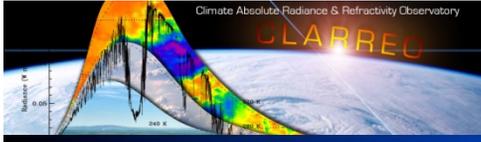


CLARREO Extended Pre-Phase A Plan

- The Science Team will continue to advance CLARREO-related science
 - Improve the rigor of climate Observing System Simulation Experiments (OSSEs).
 - Refine the requirements for hyperspectral climate measurements
 - Study the complementary applications of CLARREO IR, RS, and GNSS-RO observations for climate signal benchmarking and climate model testing
 - Extend orbital sampling studies to additional possible orbits (space station, METOP, IRIDIUM) and examine algorithmic diurnal cycle corrections
 - Study the use of spectral radiative kernels for diagnosing climate feedbacks
 - Assess the stability over decades of climate remote sensing retrievals
 - Continue to improve rigor of reference intercalibration studies
- Continue to reduce the technical risk for achieving on-orbit absolute accuracy verification of RS/IR spectrometers
 - The CLARREO Calibration Demonstration Systems (CDS) will be completed and verified
 - Continued work with NIST to advance radiometric SI standards
- Assess alternative, cost-effective mission architectures
- Continued collaboration with UK/ESA/Italy for potential international collaboration



Research progress on key science goals continues

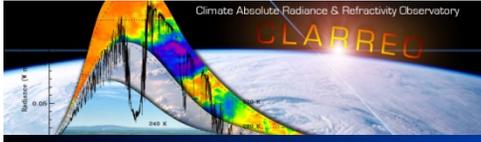


Community Recommendations for CLARREO-type measurements

- **CLARREO science objectives remain a high priority for Earth Science**
 - Improving the accuracy of the climate observing system remains a central goal of major climate policy organizations
- **Documents recommending CLARREO measurements**
 - United States National Research Council
 - *Earth Science and Applications from Space: National Imperatives for the Next Decade and Beyond (2007)*
 - World Meteorological Organization / BIPM
 - *Report on the WMO-BIPM workshop on Measurement Challenges for Global Observation Systems for Climate Change Monitoring: Traceability, Stability and Uncertainty (2010)*
 - Global Climate Observing System (GCOS)
 - *Implementation Plan for the Global Observing System for Climate in Support of the UNFCCC (2010 Update)*
 - WMO Global Space-based Inter-Calibration System (GSICS)
 - *Implementation Plan for a Global Space-Based Inter-Calibration System (2006)*



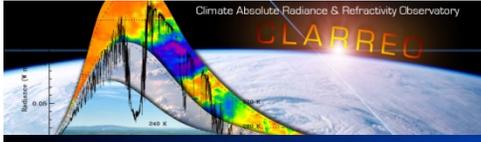
CLARREO is a necessary element of the future climate observing system



What about CLARREO budgets?

- **Budgets and civil service staffing related to mission ramp up into phase A through E have been removed. This is primarily the funding for aerospace contracts for launch, spacecraft, instruments, and for a much larger NASA civil service engineering work force.**
- **Budget for extended pre-phase A science and engineering risk reduction activities continues with modest reductions.**
- **The CLARREO team developed a white paper for NASA HQ in spring 2011 for how to ramp down the CLARREO budget and staffing profiles into an extended pre-phase A effort. NASA HQ reviewed and fully endorsed the funding and staffing in the white paper proposal.**
- **We still expect the CLARREO mission to ultimately be carried out, but there is not a specific launch date, or a formal start to the mission. This has happened to many other NASA missions in the past, and is caused by large fluctuations in NASA's budgets and commitments.**

 **CLARREO remains a necessary element of future climate observations**



Other News

- EV-2 proposals submitted in September
- Progress to be reported at December Pre-Formulation Workshop
- NRC mid-term report assessment of Decadal Survey implementation expected in November
- EV-I draft AO issued and open for comment