

NASA CMS Phase-2 Science Team Meeting
Nov. 5-7, 2013

GOALS:

1. Update on NASA perspective and goals
2. Presentation and assessment of ongoing CMS 2 Science Team Results
3. Introduction of new CMS 2013 team members and projects
4. Advance and share working group progress
5. Development and prioritization of science team goals and action items for 2013-2014

AGENDA:

Tuesday November 5

8:30 JPL welcome -*Michael Gunson*

8:35 NASA perspective -*Ken Jucks*

8:50 CMS Science Team -*George Hurtt, Peter Griffith*

9:00 Presentation of scientific results (CMS-2012, Each 10 min)

- Improving Forest Biomass Mapping Accuracy with Optical-LiDAR Data and Hierarchical Bayesian Spatial Models -*Bruce Cook*
- High Resolution Carbon Monitoring and Modeling: A CMS Phase 2 Study -*Ralph Dubayah*
- A Global Forest Biomass Inventory Based upon GLAS Lidar Data -*Sean Healey*
- Spatially Explicit Sources and Sinks of Carbon from Deforestation, Reforestation, Growth and Degradation in the Tropics: Development of a Method and a 10 Year Data Set 2000-2010 -*Richard Houghton*
- Prototyping MRV Systems Based on Systematic and Spatial Estimates of Carbon Stock and Stock Changes of Forestlands -*Sassan Saatchi*
- Kennedy-Integrating and Expanding a Regional Carbon Monitoring System into the NASA CMS -*Robert Kennedy*
- Estimating Global Inventory-Based Net Carbon Exchange from Agricultural Lands for Use in the NASA Flux Pilot Study -*Tristram West*

10:30 Break

- The Forest Disturbance Carbon Tracking System A CMS Phase 2 Study -*Eric Kaischke*
- Development of Regional Fire Emissions Products for NASA's Carbon Monitoring System using the Wildland Fire Emissions Information System -*Nancy French*
- North American Regional-Scale Flux Estimation and Observing System Design for the NASA Carbon Monitoring System -*Arlyn Andrews*
- Continuation of the Carbon Monitoring System Flux Pilot Project -*Kevin Bowman*

- Reduction in Bottom-Up Land Surface CO₂ Flux Uncertainty in NASA's Carbon Monitoring System Flux Project through Systematic Multi-Model Evaluation and Infrastructure Development -*Deborah Huntzinger*
- Use of GOSAT, TES, and Suborbital Observations to Constrain North American Methane Emissions in the Carbon Monitoring System -*Daniel Jacob*

12:00 Lunch

1:00 Presentation of scientific results, Continued (CMS-2012, Each 10 min)

- Development of Observational Products and Coupled Models of Land-Ocean-Atmospheric Fluxes in the Mississippi River Watershed and Gulf of Mexico in Support of Carbon Monitoring -*Steven Lohrenz*
- In Situ CO₂-Based Evaluation of the Carbon Monitoring System Flux Product -*John Miller*
- GEOS-CARB: A Framework for Monitoring Carbon Concentrations and Fluxes -*Steve Pawson*
- Characterizing the Phytoplankton Component of Oceanic Particle Assemblages -*Michael Behrenfeld*
- Development of New Regional Carbon Monitoring Products for the Great Lakes Using Satellite Remote Sensing Data -*Robert Shuchman*
- Towards a 4D-Var Approach for Estimation of Air-Sea Carbon Dioxide Fluxes -*Ariane Verdy*

2:30 Breakout Session 1

4:30 Plenary Report Back

5:30 Summary Discussion

6:00 Adjourn

Wednesday November 6

8:30 Project Support -*Peter Griffith*

9:00 Speed Talk presentations on new projects (CMS-2013, Each 5 min, 3 slides)

- Understanding user needs for carbon monitoring information - *Riley Duren*
- Applications of the NASA Carbon Monitoring System: Engagement, Use, and Evaluation -*Molly Brown*
- A data assimilation approach to quantify uncertainty for estimates of biomass stocks and changes in Amazon forests -*Michael Keller*
- A Joint USFS-NASA Pilot Project to Estimate Forest Carbon Stocks in Interior Alaska by Integrating Field, Airborne and Satellite Data -*Ross Nelson*

- A framework for carbon monitoring and upscaling in forests across Mexico to support implementation of REDD+ -*Rodrigo Vargas*
- Developing Statistically Rigorous Sampling Design and Analysis Methods to Reduce and Quantify Uncertainties Associated with Carbon Monitoring Systems -*Stephen Stehman*
- An Historically Consistent and Broadly Applicable MRV System Based on Lidar Sampling and Landsat Time-series (Tested in the US, and applied to the US NGHGI reporting system) -*Warren Cohen*
- Development of a Prototype MRV System to Support Carbon Ecomarket Infrastructure in Sonoma County -*Ralph Dubayah*
- Operational multi-sensor design for national scale forest carbon monitoring to support REDD+ MRV systems -*Stephen Hagen*

10:30 Break

- Time Series Fusion of Optical and Radar Imagery for Improved Monitoring of Activity Data, and Uncertainty Analysis of Emission Factors for Estimation of Forest Carbon Flux -*Josef Kellendorfer*
- Prototype Monitoring, Reporting and Verification System for the Regional Scale: The Boston-DC Corridor -*Thomas Nehrkorn*
- Off-the-shelf Commercial Compact Solar FTS for CO₂ and CH₄ Observations for MRV -*Manvendra Dubey*
- Carbon Monitoring of Agricultural Lands: Developing a Globally Consistent Estimate of Carbon Stocks and Fluxes -*Tristram West*
- Filling a Critical Gap in Indonesia's National Carbon Monitoring, Reporting, and Verification Capabilities for Supporting REDD+ Activities: Incorporating, Quantifying and Locating Fire Emissions from Within Tropical Peat-swamp Forests -*Mark Cochrane*
- Improving and extending CMS land surface carbon flux products including estimates of uncertainties in fluxes and biomass -*George Collatz*
- Quantifying fossil and biospheric CO₂ fluxes in California using ground-based and satellite observations -*Heather Graven*
- Quantification of the sensitivity of NASA CMS Flux inversions to uncertainty in atmospheric transport -*Thomas Lauvaux*

12:00 Lunch

1:00 Breakout Session 2

3:00 Plenary Report Back

4:00 Working Group Summary Presentations

5:30 Summary Discussion

6:00 Adjourn

Thursday November 7

8:30 Breakout Session 3

10:30 Plenary Report Back

11:00 Summary Discussion

11:30 Adjourn

Guide to Presenters**CMS-2012 Presentations**

CMS-2012 presentations will be each given in oral format. Each presentation will have a 10 min limit. Presentations must be submitted in PowerPoint or PDF format and loaded onto the CMS Fileshare prior to Monday Nov. 4 at 9:00PM. Filename should be composed of presenter's last name and project award year (for example SMITH-2012.pdf).

CMS-2013 Presentations

CMS-2013 presentations will be in speed-talk format. Each presentation will have a 5 min., 3 chart limit. Presentations must be submitted in PowerPoint or PDF format and loaded onto the CMS Fileshare prior to Tuesday Nov. 5 at 9:00PM. Filename should be composed of presenter's last name and project award year (for example SMITH-2013.pdf).

Working Group Summary Presentations

Working group summary presentations will each be given in oral format. Each presentation will have a 10 min limit. Presentations must be submitted in PowerPoint or PDF format and loaded onto the CMS Fileshare prior to Tuesday Nov. 5 at 9:00PM. Filename should be composed of presenter's last name and working group id (for example SMITH-GROUPNAME.pdf).

Accessing the CMS Fileshare

The plenary room has a built in computer and projector system so you must upload your presentation to the CMS Fileshare as instructed below.

- Click "Sign in" on carbon.nasa.gov
- Sign In
- On your "My Account" page under the Fall 2013 CMS Meeting click on "Meeting Fileshare"
- Select Upload a file and follow final instructions

Breakout Session Topics/Questions

Breakout Session #1: Current capabilities, strengths, weaknesses, gaps

- What are the current NASA-CMS capabilities (terms, accuracy, precision, uncertainties, resolution, domain)?
- How have NASA-CMS capabilities advanced over the past 18, 36 months?
- What are the strengths and weaknesses of the set of current approaches?
- What are the highest priority needs achievable in near term (e.g. next 18 months), and mid term (3-5 years)?
- What are the most important gaps between the current set of activities?
- What is the societal relevance of the set of approaches and results to date

Breakout Session #2: New directions, needs, and opportunities

- Are there common issues with the use off-the-shelf technologies, and commercial data etc that need to be addressed system wide?
- What are the requirements for MRV related work, and how can these best be addressed by NASA-CMS?
- How can NASA-CMS work best support REDD, REDD+ and other international projects including GEOCarbon?
- How can NASA-CMS best support NASA Earth Science objectives?
- What is the scientific level of readiness to advance from pre-phase A, piloting, and prototyping, to subsequent stages of system development?
- What CMS capabilities can NASA do best, and how should we prioritize and partner for other needed capabilities?

Breakout Session #3: Science Team organization, working groups, next steps

- What should be the goals of the NASA-CMS Science Team for the next 18 months, and longer (3-5 years)?
- How should the NASA-CMS Science Team be organized to meet its goals?
- What are the most important topics for Science Team consideration?
- How can the NASA-CMS Science Team improve its functioning?
- How should NASA-CMS organize, manage, and share data within and among teams, and with the external community?
- How should NASA-CMS Science Team engage the policy-user community?