

NASA  
Carbon Monitoring System  
Science Team Meeting  
Nov 15–16, 2016

Goals

- Update on NASA perspective and goals
- Presentation and assessment of CMS Results (2013 and 2014 projects)
- Introduction to new CMS projects (2016 projects)
- Advance and share working group progress
- Development and prioritization of science team goals and action items for 2016-2017

| <b>Tuesday-- Center of Auditorium Building CG1</b> |   |  |
|--|---|--|
| <b>Time</b>  | <b>Title</b>  | <b>Project</b>                               |
|  |   | <i>Presenter</i>                             |
| 8:00 AM  | HQ Perspective  | <i>Hank Margolis</i>                         |
| 8:15 AM  | STL Perspective   | <i>George Hurtt</i>                          |
| 8:30 AM  | <b>CMS 13 Final Reports</b> (15 min each)   |  |
| 8:30 AM  | Quantifying fossil and biospheric CO <sub>2</sub> fluxes in California using ground-based and satellite observations                                  | <b>Graven-01</b><br><i>Marc Fischer</i>      |
| 8:45 AM  | Off-the-shelf Commercial Compact Solar FTS for CO <sub>2</sub> and CH <sub>4</sub> Observations for MRV   | <b>Dubey-01</b><br>Manvendra Dubey           |
| 9:00 AM  | Quantification of the sensitivity of NASA CMS Flux inversions to uncertainty in atmospheric transport   | <b>Lauvaux-01</b><br><i>Martha Butler</i>    |
| 9:15 AM  | Prototype Monitoring, Reporting and Verification System for the Regional Scale: The Boston-DC Corridor  | <b>Nehrkorn-01</b><br><i>Thomas Nehrkorn</i> |
| 9:30 AM  | Understanding user needs for carbon monitoring information  | <b>Duren-01</b><br><i>Riley Duren</i>        |
| 9:45 AM  | A data assimilation approach to quantify uncertainty for estimates of biomass stocks and changes in Amazon forests                                    | <b>Keller-01</b><br><i>Paul Duffy</i>        |
| 10:00 AM   | Developing Statistically Rigorous Sampling Design and Analysis Methods to Reduce and Quantify Uncertainties Associated with Carbon Monitoring Systems | <b>Stehman-01</b><br><i>Stephen Stehman</i>  |
| 10:15 AM   | Applications of the NASA Carbon Monitoring System: Engagement, Use, and Evaluation  | <b>Escobar-01</b><br><i>Vanessa Escobar</i>  |
| 10:30 AM   | <i>Break</i>  |  |
| 10:45 AM   | <b>Session: WG Progress Reports</b> (10 min each)   |  |
| 10:45 AM   | Data  | Megan McGroddy                               |
| 10:55 AM   | Methane   | Daniel Jacob                                 |
| 11:05 AM   | Algorithms/Uncertainties  | Jonathan Greenberg                           |
| 11:15 AM   | MRV   | Grant Domke                                  |

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|----------|---|------------------|
| 11:25 AM | Atmospheric Validation  | Thomas Nehrkorn  |
| 11:35 AM | External Communications   | David Lagomasino |
| 11:45 AM | <b>Discussion</b> (30 min)  |                  |
| 12:15 AM | <b>Lunch &amp; 2014 Poster Session</b> --North end of Auditorium<br><i>(Presenters stand with poster 1:30-2:00pm)</i> |                  |
| 2:00 PM  | <b>Breakout Session 1</b> (90 min)  |                  |
|          | Data-- Room 2503  |                  |
|          | Methane-- Room 3131   |                  |
|          | Algorithms/Uncertainties-- Room 2126  |                  |
| 3:30 PM  | <i>Break</i>  |                  |
| 3:45 PM  | <b>Breakout Session 2</b> (90 min)  |                  |
|          | MRV-- Room 2503   |                  |
|          | Atmospheric Validation-- Room 3131  |                  |
|          | External Communications-- Room 2126   |                  |
| 5:15 PM  | <i>Break</i>  |                  |
| 5:30 PM  | <b>Discussion</b> (30 min)  |                  |
| 6:00 PM  | Adjourn   |                  |

**Wednesday-- Center of Auditorium Building CG1**

| Time     | Title  | Project                    |
|----------|--|----------------------------|
|          |  | Presenter                  |
| 8:00 AM  | Day 2 Welcome  |                            |
| 8:15 AM  | <b>CMS13 Final Reports</b> (15 min each)   |                            |
| 8:15 AM  | A framework for carbon monitoring and upscaling in forests across Mexico to support implementation of REDD+  | <b>Vargas-01</b>           |
|          |  | <i>Rodrigo Vargas</i>      |
| 8:30 AM  | 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)  | <b>Cohen-02</b>            |
|          |  | <i>Hans Andersen</i>       |
| 8:45 AM  | Development of a Prototype MRV System to Support Carbon Ecomarket Infrastructure in Sonoma County  | <b>Dubayah-04</b>          |
|          |  | <i>George Hurtt</i>        |
| 9:00 AM  | A Joint USFS-NASA Pilot Project to Estimate Forest Carbon Stocks in Interior Alaska by Integrating Field, Airborne and Satellite Data  | <b>Morton-02</b>           |
|          |  | <i>Douglas Morton</i>      |
| 9:15 AM  | 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   | <b>Cochrane-01</b>         |
|          |  | <i>Mark Cochrane</i>       |
| 9:30 AM  | Carbon Monitoring of Agricultural Lands: Developing a Globally Consistent Estimate of Carbon Stocks and Fluxes   | <b>Asrar-West-04</b>       |
|          |  | <i>Ghassem Asrar</i>       |
| 9:45 AM  | Operational multi-sensor design for national scale forest carbon monitoring to support REDD+ MRV systems   | <b>Hagen-01</b>            |
|          |  | <i>Stephen Hagen</i>       |
| 10:00 AM | 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  | <b>Kellendorfer-03</b>     |
|          | — <i>This will be presented as a poster.</i>   | <i>Josef Kellendorfer</i>  |
| 10:15 AM | <b>Discussion</b> (15 min)   |                            |
| 10:30 AM | <i>Break</i>   |                            |
| 10:45 AM | <b>CMS16 Speed Talks</b> (5 min each)  |                            |
| 10:45 AM | Time-Series Measurements of Biomass Change from InSAR (TanDEM-X), MODIS, and LiDAR Observations  | <b>Baccini-01</b>          |
|          |  | <i>Alessandro Baccini</i>  |
| 10:50 AM | Continuation and expansion to a national-scale of the 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 project | <b>Cochrane-02</b>         |
|          |  | <i>Mark Cochrane</i>       |
| 10:55 AM | Remote Sensing as a Bridge to Operational Forest Carbon Monitoring in Interior Alaska  | <b>Cook-B-03</b>           |
|          |  | <i>Hans Andersen</i>       |
| 11:00 AM | Future Mission Fusion for High Biomass Forest Carbon Accounting  | <b>Fatoyinbo-02</b>        |
|          |  | <i>Amy Neuenschwander</i>  |
| 11:05 AM | Cropland Carbon Monitoring System (CCMS): A satellite-based system to estimate carbon fluxes on U.S. Croplands   | <b>Izaurrealde-02</b>      |
|          |  | <i>Roberto Izaurrealde</i> |

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| 11:10 AM | Tools to bridge the gap between static CMS maps, models, and stakeholders  | <b>Kennedy-02</b><br><i>Robert Kennedy</i>   |
| 11:15 AM | Tracking carbon emissions and removals by time series analysis of the land surface: prototype application in tropical MRV systems compliant with IPCC Tier 3 | <b>Olofsson-01</b><br><i>Pontus Olofsson</i> |
| 11:20 AM | Annual GHG Inventory and MRV System for the US Forestlands   | <b>Saatchi-03</b><br><i>Sassan Saatchi</i>   |
| 11:25 AM | CMS Applications: Stakeholder Engagement and Analysis of CMS Data Products in Decision Making and Policy Frameworks  | <b>Escobar-02</b><br><i>Vanessa Escobar</i>  |
| 11:30 AM | Prototype methane monitoring system for California   | <b>Duren-03</b><br><i>Riley Duren</i>        |
| 11:35 AM | Global monitoring, reporting, and verification (MRV) system for carbon emissions from natural gas flaring  | <b>Elvidge-01</b><br><i>Chris Elvidge</i>    |
| 11:40 AM | Airborne Eddy Flux Measurements for Validation/Evaluation of High-Resolution MRV Systems   | <b>Kawa-03</b><br><i>Stephan Kawa</i>        |
| 11:45 AM | Towards a Complex Terrain Carbon Monitoring System (CMS-Mountains): Development and Testing in the Western U.S.  | <b>Lin-03</b><br><i>John Lin</i>             |
| 11:50 AM | Disaggregating Amazon Basin fire fluxes using remote sensing of atmospheric carbon monoxide and burned area  | <b>Miller-J-03</b><br><i>John Miller</i>     |
| 11:55 AM | Prototype regional carbon monitoring systems for urban regions   | <b>Nehrkorn-02</b><br><i>Thomas Nehrkorn</i> |
| 12:00 PM | <b>Discussion (15 min)</b>   |  |
| 12:15 PM | <b>Lunch &amp; Poster Session--</b> North end of Auditorium (1 hr and 45 min)  |  |
| 2:00 PM  | CCE Office   | Peter Griffith                               |
| 2:15 PM  | DAAC   |  |
| 2:30 PM  | <b>Discussion (15 min)</b>   |  |
| 2:45 PM  | <b>WG Report Back (10 min each)</b>  |  |
| 2:45 PM  | Data   | Megan McGroddy                               |
| 2:55 PM  | Methane  | Daniel Jacob                                 |
| 3:05 PM  | Algorithms/Uncertainties   | Jonathan Greenberg                           |
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| 4:15 PM  | <i>Break</i>   |  |
| 4:30 PM  | STL Reflection   |  |
| 4:45 PM  | HQ Reflection  |  |
| 5:00 PM  | Adjourn  |  |