

Carbon Monitoring System Science Team Meeting & Applications Workshop

November 12-14, 2019

Wednesday, November 13th

Plenary Talks		
Time	Topic	Presenter
8:15	Welcome & Intro to Unconferenced Breakouts	Peter Griffith
8:20	Phase 2 Report Introduction	George Hurtt
8:35	Flux	Lesley Ott
9:05	Methane	Daniel Jacob
9:25	Discussion	
9:45	Break	
10:00	Biomass	Robert Kennedy
10:30	Ocean	Steve Lohrenz
10:50	Stakeholders	Molly Brown
11:10	Discussion	

New Projects from CMS 2016 Solicitation Speed Talks		
11:30	<i>3 min each</i>	
	Forest degradation driven by charcoal production: characterization, quantification and forecasting to improve carbon monitoring systems in southern Africa	Fernando Sedano
	Optimizing the Global Fire Emissions Database for carbon monitoring	Jim Randerson
	Piloting a GEDI-based Forest Carbon Monitoring, Reporting, and Verification Tool	Sean Healey
	A prototype data assimilation system for the terrestrial carbon cycle to support Monitoring, Reporting, and Verification	Michael Dietze
	Improving the monitoring capability of carbon budget for the US Corn Belt - integrating multi-source satellite data with improved land surface modeling and atmospheric inversion	Kaiyu Guan

Lunch		
12:00	Lunch- <i>Room 155</i>	
12:15	Data management for CMS scientists- <i>Auditorium</i>	

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Poster Session 1		
1:00	Flux, Methane, MRV	
Location	Title	Project
9	Regional Inverse Modeling in North and South America for the NASA Carbon Monitoring System--Follow-on	Andrews 2016/2014
52	A Global High-Resolution Atmospheric Data Assimilation System for Carbon Flux Monitoring and Verification	Baker 2014
7	A decadal carbon reanalysis from the NASA Carbon Monitoring System Flux (CMS-Flux) project	Bowman 2016/2014
27	Synthesis, Reconciliation and Assessment of CMS Prototype Products	Chatterjee 2018
20	Prototype methane monitoring system for California	Duren 2015
19	Multi-tiered Carbon Monitoring System	Duren 2018
44	Global monitoring, reporting, and verification (MRV) system for carbon emissions from natural gas flaring	Elvidge 2015
38	CMS Applications: Stakeholder Engagement and Analysis of CMS Data Products in Decision Making and Policy Frameworks	Escobar 2015
12	Improving the monitoring capability of carbon budget for the US Corn Belt - integrating multi-source satellite data with improved land surface modeling and atmospheric inversion	Guan 2016
21	Data-Model Integration for Monitoring and Forecasting Coastal Wetland Carbon Exchanges: Serving Local to National Greenhouse Gas Inventories	Holmquist 2018
46	Cropland Carbon Monitoring System (CCMS): A satellite-based system to estimate carbon fluxes on U.S. Croplands	Izaurrealde 2015
41	Airborne Eddy Flux Measurements for Validation/Evaluation of High-Resolution MRV Systems	Kawa 2015
25	Carbon Monitoring System in Mountains (CMS-Mountains):	Lin 2018
37	Prototype regional carbon monitoring systems for urban regions	Nehrkorn 2015
6	GEOS-Carb III: Delivering mature carbon flux and concentration datasets in support of NASA's Carbon Monitoring System	Ott 2016/2014
14	Optimizing the Global Fire Emissions Database for carbon monitoring	Randerson 2016
30	Quantifying and Partitioning the Global Methane Budget Using Satellite and Ground Based Measurements Of CH ₄ and Tracers of Its Sources and Sinks	Worden 2018
31	An Aquatic Ecosystem Carbon Monitoring System (AECMS) for Quantifying Carbon Fluxes, Sources and Sinks of Inland Waters: Development and Verification in the Upper Mississippi River Basin	Zhang 2018

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Phase 3 Speed Talks	
2:00	3 minutes each
Synthesis, Reconciliation and Assessment of CMS Prototype Products	Abhishek Chatterjee
Effectiveness and monitoring of large-scale carbon-loss mitigation activities in Indonesia's peatlands	Mark Cochrane
NASA-USFS Partnership to Advance Operational Forest Carbon Monitoring in Interior Alaska	Doug Morton (PI: Bruce Cook)
Pantropical structure and biomass mapping using the fusion of GEDI and TanDEM-X data	Lola Fatoyinbo (PI: Ralph Dubayah)
Multi-tiered Carbon Monitoring System	Riley Duren
Bio-Optical Monitoring and Evaluation System (BIOMES) for improving satellite estimates of Ocean Net Primary Production for Carbon Cycling and Climate Change studies	Joaquim Goés
Data-Model Integration for Monitoring and Forecasting Coastal Wetland Carbon Exchanges: Serving Local to National Greenhouse Gas Inventories	James Holmquist
A bottom-up, stakeholder-driven CMS for regional biomass carbon dynamics: Phase II	Andy Hudak
Carbon Monitoring System in Mountains (CMS-Mountains): Leveraging Satellite-based Solar-Induced Fluorescence to Understand Forest Drought and Mortality in the Western U.S.	Brett M Raczka (PI: John Lin)
Remote sensing methods to characterize, quantify and monitor carbon in a continental shelf sea	Catherine Mitchell
Teal Carbon – Stakeholder-driven Monitoring of Forested Wetland Carbon	Monika Moskal
Continuation of CMS Applications Efforts: Stakeholder Engagement and Socioeconomic Studies on the Value of CMS Data Products for User Organizations	Edil Sepulveda Carlo (PI: Ben Poulter)
Quantifying and Partitioning the Global Methane Budget Using Satellite and Ground Based Measurements Of CH ₄ and Tracers of Its Sources and Sinks	Daniel Jacob (PI: John Worden)
An Aquatic Ecosystem Carbon Monitoring System (AECMS) for Quantifying Carbon Fluxes, Sources and Sinks of Inland Waters: Development and Verification in the Upper Mississippi River Basin	Xuesong Zhang
A pantropical monitoring system of carbon emissions and removals from forest degradation, deforestation, and forest expansion and growth	Pontus Olofsson
3:15	Discussion

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Working Group Reports		
3:30	Atmospheric Validation	Thomas Nehrkorn
	Methane	Daniel Jacob
	MRV	Pontus Olofsson
	Uncertainties/Algorithm Assessment/Inter-comparisons	Robert Kennedy
4:30	Discussion	
4:45	Break	

Poster Session 2		
5:00	Biomass & Ocean	
Location	Title	Project
39	Time-Series Measurements of Biomass Change from InSAR (TanDEM-X), MODIS, and LiDAR Observations	Baccini 2015
45	Effectiveness and monitoring of large-scale carbon-loss mitigation activities in Indonesia's peatlands	Cochrane 2015
17	NASA-USFS Partnership to Advance Operational Forest Carbon Monitoring in Interior Alaska	Cook 2018/2015
10	A prototype data assimilation system for the terrestrial carbon cycle to support Monitoring, Reporting, and Verification	Dietze 2016
32	Pantropical structure and biomass mapping using the fusion of GEDI and TanDEM-X data	Dubayah 2018
11	New Carbon Monitoring Products for Global Freshwater Lakes using Satellite Remote Sensing Time Series Data	Fahnenstiel 2016
3	Future Mission Fusion for High Biomass Forest Carbon Accounting	Fatoyinbo 2015
4	Estimating Total Ecosystem Carbon in Blue Carbon and Tropical Peatland Ecosystems	Fatoyinbo 2016/2014
51	Reducing Uncertainties in Satellite-Derived Forest Aboveground Biomass Estimates Using a High Resolution Forest Cover Map	Ganguly 2014
28	Bio-Optical Monitoring and Evaluation System (BIOMES) for improving satellite estimates of Ocean Net Primary Production for Carbon Cycling and Climate Change studies	Goés 2018
1	Three dimensional change detection of aboveground biomass	Greenberg 2016
8	Piloting a GEDI-based Forest Carbon Monitoring, Reporting, and Verification Tool	Healey 2016/2014

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Poster Session 2 cont'd		
Location	Title	Project
33	Prototyping A Methodology To Develop Regional-Scale Forest Aboveground Biomass Carbon Maps Predicted From Landsat Time Series, Trained From Field and Lidar Data Collections, And Independently Validated With FIA Data	Hudak 2014
34	A bottom-up, stakeholder-driven CMS for regional biomass carbon dynamics: Phase II	Hudak 2018
5	High-Resolution Carbon Monitoring and Modeling: Continued Prototype Development and Deployment to Regional and National Scales	Hurt 2016/2014
35	Tools to bridge the gap between static CMS maps, models, and stakeholders	Kennedy 2015
50	An Integrated Terrestrial-Coastal Ocean Observation and Modeling Framework for Carbon Management Decision Support	Lohrenz 2014
26	Remote sensing methods to characterize, quantify and monitor carbon in a continental shelf sea	Mitchell 2018
18	Long-Term Carbon Consequences of Amazon Forest Degradation	Morton 2014
29	Teal Carbon – Stakeholder-driven Monitoring of Forested Wetland Carbon	Moskal 2018
24	Tracking carbon emissions and removals by time series analysis of the land surface: prototype application in tropical MRV systems compliant with IPCC Tier 3	Olofsson 2015
23	A pantropical monitoring system of carbon emissions and removals from forest degradation, deforestation, and forest expansion and growth	Olofsson 2018
43	Annual GHG Inventory and MRV System for the US Forestlands	Saatchi 2015
2	Forest degradation driven by charcoal production: characterization, quantification and forecasting to improve carbon monitoring systems in southern Africa	Sedano 2016
13	Carbon monitoring systems across Mexico to support implementation of REDD+: maximizing benefits and knowledge	Vargas 2016
40	Direct Measurement of Aboveground Carbon Dynamics in Support of Large-Area CMS Development	Walker 2014
49	Translating Forest Change to Carbon Emissions/Removals Linking Disturbance Products, Biomass Maps, and Carbon Cycle Modeling in a Comprehensive Carbon Monitoring Framework	Williams 2014
22	Linking Satellite and Soil Data to Validate Coastal Wetland 'Blue Carbon' Inventories: Upscaled Support for Developing MRV and REDD+ Protocols	Windham-Myers 2014
6:00	Adjourn	

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Plenary Talks

Time	Topic	Presenter
8:00	IceSAT-2	Laura Duncanson
8:15	ISS: GEDI, OCO-3, ECOSTRESS for structure, function, composition	Josh Fisher (remote)
8:30	Landsat	Jeff Masek (remote)
8:45	Discussion	
9:00	Emerging Cloud Computing Capabilities for Data Analysis	Mark Carroll (remote)
9:15	GeoCARB	Ken Jucks
9:30	Decadal Survey, SBG, & Future Missions	Ben Poulter (remote)
9:45	Discussion	
10:00	Break	

Breakouts

10:15	Charge to Breakouts	George Hurtt and Peter Griffith
10:30	Breakout Sessions: Future Working Groups <ul style="list-style-type: none"> • Plenary Room • Room 165 • Room 160 • Room 150 	

Lunch

12:00	Lunch- <i>Room 155</i>
12:15	Data management open house- <i>Room 165</i> <ul style="list-style-type: none"> • The data management team will be available to answer questions about data.

Posters

1:00	Poster Session for all posters
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2:00	CMS Project Management	Megan McGroddy
2:10	Interagency Carbon Programs	Libby Larson
2:30	CMS synergies with ABoVE	Peter Griffith
2:45	Communications Plan	David Lagomasino
3:00	Breakout reports	
4:00	Discussion	
4:30	Next Steps	George Hurtt
4:45	HQ Reflecting on Meeting	Hank Margolis and Ken Jucks
5:00	Adjourn	

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