

## **K&C Product Delivery Report and Schedule for 2010**

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## K&C deliverables

### Papers and Reports

#### 1. Published (please provide PDF file)

- K&C Phase-1 report\*
- “Significant finding” on K&C Wiki
  - Freeze/Thaw heterogeneity
  - Alaska Wetlands Map
  - Alaska multi-temporal inundation
- T J Bohn, D P Lettenmaier, K Sathulur, L C Bowling, E Podest, K C McDonald and T Friborg, 2007. Methane emissions from western Siberian wetlands: heterogeneity and sensitivity to climate change. Environmental Research Letters, doi:10.1088/1748-9326/2/4/045015
- J Whitcomb, M. Moghaddam, K McDonald, J Kelndorfer, E Podest, 2009. Mapping vegetated wetlands of Alaska using L-band radar satellite imagery. Canadian Journal of Remote Sensing, vol. 35 no 1. pp 54-72.

## K&C deliverables

### Papers and Reports

#### 1. Published

2009

Podest, E., K. C. McDonald, and R. Schroeder, 2009. "Global Monitoring of Inundated Wetland Ecosystems with Integrated Satellite Remote Sensing," 33rd International Symposium on Remote Sensing of the Environment, May 4-8, 2009, Stresa, Italy.

2008

- Bohn, T J, E. Podest, K. C. McDonald, C. Chiu, L. C. Bowling, D. P. Lettenmaier, 2008. "Estimating Soil Moisture, Inundation, and Methane Emissions from Siberian Wetlands Using Models and Remote Sensing," Proc. American Geophysical Union Fall Meeting, 15-19 December, 2008, San Francisco, California.
- Chapman, B., K. McDonald, and L. Hess, 2008. Mosaicking of ALOS PALSAR Data for Global Wetlands Mapping. Proceedings of IGARSS 2008, 6-11 July 2008, Boston, Massachusetts.
- Chapman, B., K. McDonald, L. Hess, 2008. "Global Wetlands Mapping Using ALOS PALSAR data," 2nd ALOS PI Symposium, November 3-7, 2008, Rhodes, Greece.
- McDonald, K. C., E. Podest, B. Chapman, L. Hess, M. Moghaddam, J. Kimball, E. Matthews, C. Prigent, "Construction of an Earth System Data Record of Inundated Wetlands Using ALOS PALSAR," 2nd ALOS PI Symposium, November 3-7, 2008, Rhodes, Greece.
- McDonald, K. C., B. Chapman, E. Podest, L. Hess, M. Moghaddam, J. Kimball, E. Matthews, C. Prigent, M. Finlayson, N. Davidson, W. Chen, M. Hallikainen, A. Rosenqvist, M. Shimada, 2008. "Assembly of an Inundated Wetlands Earth System Data Record: Global Monitoring of Wetland Extent and Dynamics," 8th INTECOL International Wetlands Conference, 20-25 July, Cuiaba, Brazil.
- McDonald, K., E. Podest, M. Moghaddam, T. Bohn, D. Lettenmaier, J. Kimball, 2008. "Remote sensing of boreal wetlands and seasonal freeze-thaw with multi-source satellite data for assessment of CH4 and CO2 fluxes," Climate Impacts on Canadian Arctic Tundra (CiCAT) 2nd Annual Meeting, April 14, 2008, Ottawa, Ontario, Canada.
- McDonald, K., E. Podest, T. Bohn, D. Lettenmaier, M. Moghaddam, J. Whitcomb, 2008. "Radar Remote Sensing of Northern Wetlands for Modeling of Methane Emissions," Climate Impacts on Canadian Arctic Tundra (CiCAT) 2nd Annual Meeting, April 14, 2008, Ottawa, Ontario, Canada

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### Papers and Reports

#### 1. Published

2008 (con'd)

McDonald, K. C., B. Chapman, L. Hess, M. Moghaddam, J. Kimball, E. Matthews, C. Prigent, M. Finlayson, N. Davidson, W. Chen, M. Hallikainen, A. Rosenqvist, M. Shimada, 2008. "An Inundated Wetlands Earth System Data Record: Global Monitoring of Wetland Extent and Dynamics," NASA Carbon Cycle & Ecosystems Joint Science Workshop, April 28 – May 2, 2008, Adelphi, Maryland.

- Moghaddam, M., J. Whitcomb, K. McDonald, E. Podest, 2008. "Boreal Wetland Mapping Using L-Band Radar Satellite Imagery," "Climate Impacts on Canadian Arctic Tundra (CiCAT) 2nd Annual Meeting, April 14, 2008, Ottawa, Ontario, Canada.
- Podest, E., K. McDonald, T. Bohn, D. Lettenmaier, M. Moghaddam, J. Whitcomb, 2008. "Radar Remote Sensing of Wetlands in Boreal Eurasia and North America for use in Methane Emission Modeling," NASA Carbon Cycle & Ecosystems Joint Science Workshop, April 28 – May 2, 2008, Adelphi, Maryland.
- Podest, E., K. McDonald, T. Bohn, D. Lettenmaier, 2008. "Radar Remote Sensing of Wetlands in the Northern High Latitudes for use in Methane Emission Modeling," 8th INTECOL International Wetlands Conference, 20-25 July, Cuiaba, Brazil.
- Podest, E. and K. McDonald, 2008. "Open Water Distribution across Alaska with Time Series L-band Synthetic Aperture Radar Remote Sensing Data," International Workshop on Microwave Remote Sensing for Land Hydrology Research and Applications, 20-22 October, 2008, Oxnard, California.
- Podest, E., K. C. McDonald, B. Chapman, L. Hess, M. Moghaddam, J. Kimball, E. Matthews, C. Prigent, M. Finlayson, N. Davidson, W. Chen, M. Hallikainen, A. Rosenqvist, and M. Shimada, 2008. "An Inundated Wetlands Earth System Data Record: Global Monitoring of Wetland Extent and Dynamics," Proc. American Geophysical Union Fall Meeting, 15-19 December, 2008, San Francisco, California.
- Whitcomb, J B, M. Moghaddam, K. McDonald, E. Podest, B. Chapman, 2008. "Decadal Change in Northern Wetlands Based on Analysis of ALOS/PALSAR and JERS SAR Data," Proc. American Geophysical Union Fall Meeting, 15-19 December, 2008, San Francisco, California.

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### Papers and Reports

#### 1. Published

2007

Bohn, T. J., D. P. Lettenmaier, E. Podest, K. C. McDonald, K. Sathulur, and L. Bowling, 2007. "Methane emissions from Western Siberian wetlands: heterogeneity and sensitivity to climate change," Proceedings of the 2007 Fall Meeting of the American Geophysical Union, 10-14 December, San Francisco, California.

- Chiu, C. M., K. Sathulur, L. C. Bowling, E. Podest, T. J. Bohn, D.P. Lettenmaier, and K.C. McDonald, 2007. "20th century lake and wetland variability in regions of seasonal and permanent soil frost," Proceedings of the 2007 Fall Meeting of the American Geophysical Union, 10-14 December, San Francisco, California.
- McDonald, K. C., 2007. "Earth Science Data Record Assembly in Support of ALOS K&C Wetlands Theme Science," The First Joint PI Symposium of ALOS Science Program, Kyoto, Japan, 19-23 November 2007.
- McDonald, K. C., and E. Podest, 2007. "Use of Microwave Remote Sensing in Land Cover Studies of Wetlands and Seasonal Processes," Earth from Space: The most effective solutions, Moscow, Russia, 4-6 December 2007.
- McDonald, K.C., B. Chapman, E. Podest, and A. Jimenez, 2007. "Assessment of a Near-Global 30-meter Resolution DEM Derived from the Publicly Available SRTM Data Set for Use in Orthorectification of Satellite SAR Imagery," Proceedings of the 2007 Fall Meeting of the American Geophysical Union, 10-14 December, San Francisco, California.
- Podest, E., K. C. McDonald, T. J. Bohn, and D. P. Lettenmaier, 2007. "Remote Sensing of Open Water in Northern High Latitudes for Use in Methane Emissions Modeling," Earth from Space: The most effective solutions, Moscow, Russia, 4-6 December 2007.
- Podest, E., K. C. McDonald, J. S. Kimball, T. Bohn, D. Lettenmaier, L. Bowling, 2007. "Remote Sensing of Open Water in Northern High Latitudes for Use in Hydrologic Modeling," Proceedings of the 2007 Fall Meeting of the American Geophysical Union, 10-14 December, San Francisco, California.
- Whitcomb, J., M. Moghaddam, K. McDonald, E. Podest, J. Kelndorfer, 2007. A Wetlands Map of Alaska Using L-Band Radar Satellite Imagery. Proceedings of IGARSS 2007, 23-27 July 2007, Barcelona, Spain.

## K&C deliverables

### Papers and Reports

#### 2. Submitted/in preparation

- *R Schroeder, M A Rawlins, K C McDonald, E Podest, R Zimmermann and M Kueppers, 2010. "Satellite Microwave Remote Sensing of North Eurasian Inundation Dynamics: Development of Coarse-Resolution Products and Comparison with High-Resolution Synthetic Aperture Radar Data. Ecological Research Letters, special issue on Northern Hemisphere high latitude climate and environmental change (in review)*
- *Podest, McDonald et al, "land cover classification of selected hydrologic basins in Northern Eurasia with L-band SAR for characterization of land-atmosphere carbon exchange" (2010)*
- *Podest, McDonald et al, "Mapping open water on Alaska with L-band SAR (2010)*
- *McDonald, Schroeder et al (K&C wetlands team?) Assessment of coarse resolution inundation mappings using high resolution K&C wetlands products (2011?)*

## K&C deliverables

### Data sets and Thematic products (mosaics, classification maps etc.)

#### 1. Completed and Delivered to JAXA

- *Nothing delivered yet*

#### 2. Completed, but not yet delivered (please deliver ASAP)

- *Alaska wetlands map*
- *Alaska time series open water*

## K&C deliverables

### Data sets and Thematic products (mosaics, classification maps etc.)

#### 3. To be completed during 2010

- *K&C Booklet contribution with latest results (during KC#13)*
- *Maps of inundated wetlands focusing on regions of SCANSAR mosaics for each repeat interval for each region\**
  - *Pending resolution of ScanSAR calibration and geolocation issues*
  - *Delivery will be on-going for the duration of the Inundated Wetlands MEaSURES project.*