

Remote Sensing and Hydrology 2010 Symposium

September 27 - 30, 2010

Snow King Resort • Jackson Hole, Wyoming

The preliminary program of

**The Remote Sensing and
Hydrology 2010 Symposium**

Symposium Chair:

Christopher M.U. Neale

Technical Committee:

William P. Kustas, Richard de Jeu, Christopher M.U. Neale, Thomas Jackson, Wade T. Crow, Martha Anderson, Henk de Bruin, Christopher Hopkinson, John H. Prueger, Michael H. Cosh, Yangbo Chen, Joseph G. Alfieri

Organizing Committee:

Christopher M.U. Neale, Saleh Taghvaeian, Robert Gerber

Day 1: Tuesday, September 28

08:00 AM – 10:00 AM

Opening Plenary Session

10:00 AM – 10:30 AM

Coffee Break

10:30 AM – 12:30 PM

Three Concurrent Sessions

Session 1 Title: Data Assimilation (i), Chair: Wade Crow

10:30 AM	Data assimilation as a paradigm for improving hydrological applications at hillslope scales: an example using synthetic SMAP observations
10:50 AM	The Soil Moisture Analysis Rainfall Tool (SMART): Correcting satellite-based precipitation using land data assimilation
11:10 AM	Using the extended Kalman filter to assimilate soil moisture observations in NCEP Global Forecast System
11:30 AM	Data Assimilation of Space-based Passive Microwave Soil Moisture Retrievals and the Correction for a Dynamic Open Water Fraction
11:50 AM	Online vegetation parameter estimation in passive microwave regime for soil moisture estimation
12:10 PM	Using a One-Year, 1-km, North American Nature Run to Develop and Test the Canadian Land Data Assimilation System

Session 2 Title: Surface Energy Balance\Evapotranspiration Modeling (i), Chair: William Kustas

10:30 AM	Refining components of a satellite based surface energy balance model to complex-land use systems
10:50 AM	Long-term Global Evapotranspiration from Remote Sensing
11:10 AM	ET estimation for olive orchards using satellite-based energy balance and ET simulation
11:30 AM	Seasonal Evapotranspiration Mapping Using Landsat Visible and Thermal Data with Energy Balance Approach in Central Nebraska
11:50 AM	Two Different Remote Sensing Techniques for Monitoring Crop Coefficient and Water Requirement of Cotton
12:10 PM	Adjusting for background soil evaporation when interpolating evapotranspiration between satellite overpass dates

Session 3 Title: General Applications (i), Chair: Ian Cluckie

10:30 AM	Bayesian Remote Sensing of Hydrologic Parameters
10:50 AM	A Prototype Observation System for Water Resources in South-East Asia: Ground and Space observations
11:10 AM	Parameterization based on NOAA–AVHRR NDVI to improve conceptual rainfall–runoff modelling in a large West African catchment
11:30 AM	Stream-Aquifer Interaction Assessment Using Riparian Evapotranspiration Estimates from Remote Sensing Algorithms
11:50 AM	Airborne Multi-Sensor Platform with Potential for Hydrological Applications
12:10 PM	Ground Based Dual-Polarisation Radar in the Context of Hydrological Modelling

12:30 PM – 01:30 PM

Lunch Break

01:30 PM – 03:10 PM

Three Concurrent Sessions

Session 1 Title: New Satellite Missions (i), Chair: Thomas Jackson

1:30 PM	SMOS in flight: first results
1:50 PM	Anticipated Impacts of Soil Moisture Active Passive (SMAP) Mission Measurements on Hydrologic Applications
2:10 PM	Satellite Microwave Remote Sensing of Landscape Freeze-Thaw States for the NASA Soil Moisture Active Passive Mission
2:30 PM	ESA's COLD REgions Hydrology High-resolution Observatory (CoReH2O): Overview and early results from recent field campaigns
2:50 PM	Land Surface Emission Modeling to Support Physical Precipitation Retrievals

Session 2 Title: Model Validation Issues Using Surface Flux Measurement, Chair: John Prueger

1:30 PM	Accuracy of pixel vs. footprint approaches for empirically derived ET estimates from Landsat TM
1:50 PM	Ground Based Riparian Evapotranspiration Measurements for Remote Sensing Algorithms
2:10 PM	How Representative is a Point? The Spatial Variation of Surface Flux Measurements across Short Distances
2:30 PM	A Comparison of the Eddy Covariance, Bowen Ratio, and Lysimetry-based Measurements of Surface Energy Fluxes during BEAREX08
2:50 PM	Characteristic eddy scales from dry land to irrigated surfaces in response to saturation deficit advection

Session 3 Title: GIS Applications, Chair: Ian Cluckie

1:30 PM	Short-term chronological visualization of post hurricane destruction in Puerto-Rico using GIS
1:50 PM	Remote Sensing and GIS in Inflow Estimation for Reservoir Operations - Magat Dam, Philippines
2:10 PM	Watershed prioritization for effective management of water resource using remote sensing and geographical information system
2:30 PM	Spatial modeling of runoff volume using GIS
2:50 PM	Surface water balance computation using remote sensing and GIS approach

03:10 PM – 03:40 PM

Coffee Break

03:40 PM – 06:30 PM

Three Concurrent Sessions

Session 1 Title: Data Assimilation (ii), Chair: Wade Crow

3:40 PM	Estimating the global terrestrial hydrologic cycle through modeling, remote sensing, and data assimilation
4:00 PM	Assimilation of satellite-derived skin temperature observations from ISCCP into two land surface models
4:20 PM	Assimilation of multi-sensor snow observations for improved characterization of snow processes
4:40 PM	AMSR-E snow water equivalent and MODIS snow cover fraction assimilation in Colorado
5:00 PM	Assimilation of remotely sensed snow cover within land surface models to support early detection of agricultural drought

Session 2 Title: Scintillometry, Chair: Henk De Bruin

3:40 PM	Long path scintillometry: a brief review
4:10 PM	Inter-Comparison of Large Aperture Scintillometers
4:30 PM	Estimation of catchment averaged sensible heat fluxes using a Large Aperture Scintillometer
4:50 PM	Measurement and Application of Sensible Heat Flux on Kilometers Scale
5:10 PM	Incorporating LIDAR Data into Scintillometer-Based Estimates of Sensible Heat Flux Considering Different Atmospheric Stability Conditions
5:30 PM	Scintillometer and eddy covariance comparisons over sagebrush and invasive cheatgrass communities in Idaho
5:50 PM	Estimating ET using Scintillometers and Satellites in an irrigated vineyard in the Costa de Hermosillo, Sonora, Mexico
6:10 PM	Determining sensible and latent heat fluxes at satellite grid scales by two-wavelength scintillometry - results from the Sheepdrove Farm Experiment
6:30 PM	Sensible heat flux measured by large aperture scintillometer over a corn field under near-neutral conditions

Session 3 Title: General Applications (ii), Chair: Subramania Sritharan

3:40 PM	Integrated Remote Sensing of Bathymetry and Onshore Topography For Asset Inspection, Hydrology Modeling and Hazard Assessment
4:00 PM	Evaluating the effect of uncertainty in the delineation of a hydrological catchment over the peak flow computation
4:20 PM	Potential impact of Sambor dam project on tonle sap lake ecosystem based on remote sensing image analysis
4:40 PM	Precipitation Estimation from CloudSat
5:00 PM	Multisensoral Remote Sensing Based Modelling of the Water Balance of Endorheic Lakes on the Tibetan Plateau
5:20 PM	Calibrating TMPA Data for Minimizing Localization of Heavy Precipitation Monsoon Seasonal Effects in Equatorial Region
5:40 PM	Effects of resolution and scale on the accuracy of impervious fraction for urban catchments in Australia

Day 2: Wednesday, September 29

08:00 AM – 10:00 AM

Three Concurrent Sessions

Session 1 Title: LiDAR Applications (i), Chair: Christopher Hopkinson

8:00 AM	Using Selective Drainage Methods to Extract Continuous Surface Flow from 1-Meter Lidar-Derived Digital Elevation Data
8:20 AM	Changes of Topographic Context of the Yanamarey glacier in the Tropical Peruvian Andes
8:40 AM	A GIS modelling routine to optimize lidar-based effective leaf area index values in a boreal forest watershed
9:00 AM	Hydrological implications of periglacial expansion in the Peyto Glacier catchment, Canadian Rockies
9:20 AM	Sensitivity of Modeled Watershed Attributes and Hydrological Outputs to DEM Spatial Resolution
9:40 AM	Estimation of hydrodynamic vegetation density using airborne LiDAR

Session 2 Title: Monitoring Invasive Species, Chair: Shruti Khanna and Maria Santos

8:00 AM	Can Remote Sensing Techniques be used to evaluate the impact of Invasive Alien Plants on available water resources? A South African case study
8:20 AM	Diverse approaches to detection and mapping of aquatic invasive species using imaging spectroscopy
8:40 AM	Turbidity declines and submerged aquatic vegetation expansion in a tidal river delta
9:00 AM	Monitoring and Modeling Water Quality Parameters By Means Of AISA Data and Multispectral Remote Sensing
9:20 AM	Salt Cedar Biomass Study in Cibola National Wildlife Refuge
9:40 AM	Tracking Phragmites Australis Expansion in the Bear River Migratory Bird Refuge using AggieAir™ Aircraft Data

Session 3 Title: Flood Forecasting and Management (i), Chair: Yangbo Chen

8:00 AM	Remote Sensing Techniques as a Tool for Development of Small Scale Urban Runoff Models
8:20 AM	Remote sensing of surface water: taking benefit from OBIA and sensors
8:40 AM	SEBAL Evapotranspiration Estimates for the Improvement of Hydrologic Model Predictions of Runoff and Soil Moisture
9:00 AM	Hydrological simulation using LandSat data in the Wei River basin, China
9:20 AM	Thresholds and Parameters Optimization Method of Radar Classified Z~I Relationship and Its Application in the Flood Forecasting
9:40 AM	The Impacts of Radar-Precipitation-Estimation on Stream Flow Simulation with HSPF

10:00 AM – 10:30 AM

Coffee Break

10:30 AM – 12:30 PM

Three Concurrent Sessions

Session 1 Title: Microwave Applications (i), Chair: Michael Cosh

10:30 AM	Australian Soil Moisture Field Experiments in Support of Soil Moisture Satellite Observations
10:50 AM	SWEHydro Model and AMSR-E observations: an effective tool to reconstruct snowmelt runoff timing and magnitude, Yukon and Mackenzie rivers
11:10 AM	Transformations of river bed pattern of a lowland river inferred from aerial surveys and ground penetrating radar (GPR)
11:30 AM	Regional and temporal patterns of soil moisture during CLASIC using passive microwave satellite observations
11:50 AM	Soil moisture retrieval from C- and L-band SAR using modeled effective roughness
12:10 PM	Increase in “effective” spatial resolution and accuracy of soil moisture and ocean salinity determination at passive L-band microwaves by incorporation into the retrieving procedures of either current multispectral

Session 2 Title: Surface Energy Balance\Evapotranspiration Modeling (ii), Chair: William Kustas

10:30 AM	Implementation of SEBAL Algorithm with Landsat Thematic Mapper 5 in Lower Colorado Basin
10:50 AM	Filling satellite image cloud gaps to create complete images of evapotranspiration
11:10 AM	Comparison of ET from two remote sensing-based surface energy models in the Central Platte Natural Resource District of Nebraska
11:30 AM	Estimates of Reference Crop Evapotranspiration obtained from LSF SAF products derived from the geostationary satellite MSG (METEOSAT)
11:50 AM	Estimation of evapotranspiration using surface energy balance approach in Solani watershed - a case study
12:10 PM	Satellite-only latent heat flux estimation

Session 3 Title: General Applications (iii), Chair: Ricardo Trezza

10:30 AM	Impacts on the Edwards Aquifer Recharge from Precipitation Magnitude, Pattern, Timing, and Intensity
10:50 AM	Integrating multi-criteria evaluation with GIS for artificial recharge site selection- A case study from hard rock area of South India
11:10 AM	Application of Simplified Water Balance Model to Evaluate the Impact of the Dam on the Lake Water Levels
11:30 AM	Impact of dynamic albedo and vegetation fraction on the simulation of drought in south-east Australia using a regional climate model
11:50 AM	Climate change impacts on water resources in the high basin of Okpara in Benin (West Africa)
12:10 PM	Monitoring Land Use Changes and Water Deficit of Horqin Sandy Land in a Changing Climate

12:30 PM – 01:30 PM

Lunch Break

01:30 PM – 03:10 PM

Three Concurrent Sessions

Session 1 Title: New Satellite Missions (ii), Chair: Thomas Jackson

1:30 PM	Estimating river discharge from space: the Surface Water Ocean Topography satellite
1:50 PM	SWOT's Capability of Measuring Surface Water Storage Change
2:10 PM	Monitoring inundated wetlands ecosystems with satellite microwave remote sensing
2:30 PM	Mapping Surface Water with Interferometric Radar

Session 2 Title: Advances in Thermal-Infrared Remote Sensing, Chair: Martha Anderson

1:30 PM	Analysis of ASTER thermal infrared data over an arid area in southern New Mexico
1:50 PM	Thermal infrared emissivity dependence on soil moisture observed in the field by the TES method
2:10 PM	Monitoring the Dynamic Geohydrology of The Upper Geyser Basin, Yellowstone National Park: An Integration of Airborne Thermal Infrared and LiDAR Imagery
2:30 PM	Estimation of surface energy fluxes in vineyard using field measurements of canopy and soil temperature
2:50 PM	Seasonal NDVI-LST Relationship over Irrigated Agriculture

Session 3 Title: Flood Forecasting and Management (ii), Chair: Yangbo Chen

1:30 PM	Flood forecasting and management with remote sensing and GIS
1:50 PM	ASAR/ENVISAT images for the calibration of the wind hydrodynamic effect on Doñana wetlands
2:10 PM	Global scale simulation of floodplain inundation with low resolution space-borne data

03:10 PM – 03:40 PM

Coffee Break

03:40 PM – 06:20 PM

Two Concurrent Sessions

Session 1 Title: Soil Moisture Algorithms, Chair: Richard de Jeu

3:40 PM	Global surface wetness fields derived from AMSR-E day-night brightness temperature differences
4:00 PM	An Analysis on the Single-channel and Multi-channel Soil Moisture Retrieval Algorithms Using Passive Microwave Satellite Observations
4:20 PM	Soil Moisture Retrieval Using Multi-Channel Passive Microwave Measurements through Improved Radiative Transfer Modeling
4:40 PM	Near-Surface Soil Moisture Estimating using AMSR-E Brightness Temperature
5:00 PM	Improving Satellite Soil Moisture Estimates by Combining Passive and Active Microwave Observations (1992-2008)
5:20 PM	Validation of SMOS Soil Moisture with Dense and Sparse Networks in the U.S.
5:40 PM	Evaluation of SMOS soil moisture with other existing satellite soil moisture products

Session 2 Title: Application of Vegetation Indices for Evapotranspiration Modeling, Chair: Ayse Irmak

3:40 PM	Basal crop coefficient from remote sensing assessment in rain-fed grapes in southeast Spain
4:00 PM	Coupling remote sensing and FAO56 for a distributed water budget model in large areas
4:20 PM	On the relationship between crop factor and vegetation index
4:40 PM	Estimating Evapotranspiration (ET) In The Palo Verde Irrigation District PVID Using MODIS Derived Enhanced Vegetation Index (EVI) And Ground Based Micro-Meteorological Data
5:00 PM	Estimation of Evapotranspiration using LANDSAT TM Imagery

06:30 PM – 08:30 PM

Poster Session and Reception

Day 3: Thursday, September 30

08:00 AM – 10:00 AM

Two Concurrent Sessions

Session 1 Title: Glaciers and Snow, Chair: Thomas Painter

8:00 AM	Improving melt runoff modeling by incorporating information from different water bearing zones in a glacierized basin
8:20 AM	A systematically-derived global glacier map using MODIS data
8:40 AM	Satellite Snow-Cover Studies of Snowmelt Timing, Wind River Range, Wyoming, 1970 – 2010
9:00 AM	Precision Global Snow Products from MODIS: the MODIS Snow Covered Area and Grain size model
9:20 AM	Canopy-adjustment of the MODIS fractional snow covered area in forest catchments in the Sierra Nevada
9:40 AM	Application of Tracer Technique in measuring discharges of Snow fed rivers of Nepal Himalaya
10:00 AM	Spatial distribution of radiative forcing by dust in snowmelt-dominated hydrologic systems using coupled satellite and in situ measurements

Session 2 Title: Surface Energy Balance\Evapotranspiration Modeling (iii), Chair: Martha Anderson

8:00 AM	ETLook a novel continental evapotranspiration algorithm
8:20 AM	Analysis of energy fluxes estimations over Italy using time-integrated models based on thermal remote sensing data
8:40 AM	Detection of crop water stress in Mediterranean irrigated conditions by using remote sensing-based two-source energy balance and soil water flow modeling
9:00 AM	Validation of the newly improved global MOD16 algorithm using hydrological model and eddy covariance data in Brazilian tropical savannas
9:20 AM	Integration of Multi-Scale Thermal Satellite Imagery for Evaluation of Daily Evapotranspiration at the Sub-Field Scale
9:40 AM	Atmospheric Correction of Landsat TM Data for Evapotranspiration Estimation of the Riparian Vegetation in Lower Colorado River

10:00 AM – 10:30 AM

Coffee Break

10:30 AM – 12:30 PM

Two Concurrent Sessions

Session 1 Title: Microwave Applications (ii), Chair: Richard de Jeu

10:50 AM	A MISR-derived Vegetation Canopy Adjustment for Fractional Snow-Covered Area from MODIS
11:10 AM	Polarimetric Change Detection for Wetlands
11:30 AM	Canadian SAR Remote Sensing for the Terrestrial Wetland Global Change Research Network (TWGCRN)
11:50 AM	Storage Dynamic of Great Mahakam Lakes in Indonesian Borneo through Satellite Altimetry, Optical Remote Sensing and Bathymetry Mapping
12:10 PM	Near-real Time Monitoring of Global Lakes and Reservoirs

Session 2 Title: Irrigation Water Management, Chair: Richard Allen

10:30 AM	Improving irrigation scheduling and crop water management of large-scale, surface irrigation systems using remote-sensing based decision support
10:50 AM	Operational Irrigation Services from Remote Sensing: the Irrigation Advisory Plan of Campania Region (Italy)
11:10 AM	Estimating Evapotranspiration of Cotton Using Two Different Remote Sensing Approaches and Validation with Eddy Covariance Tower Fluxes
11:30 AM	Earth Observation for Irrigation and River Basin management in an operational way: the SPIDER system
11:50 AM	The spatial and temporal variation of crop water consumption and the impact on water productivity in the Limpopo river basin
12:10 PM	Remote sensing as a tool to track spatial water scarcity in Khorezm region of Uzbekistan

12:30 PM – 01:30 PM

Lunch Break

01:30 PM – 03:10 PM

Two Concurrent Sessions

Session 1 Title: LiDAR Applications (ii), Chair: Christopher Hopkinson

1:30 PM	Relationships between snowpack depth and primary LiDAR point cloud derivatives in a mountainous environment
1:50 PM	Delineation of lakes and channels in the Mackenzie Delta using airborne LiDAR
2:10 PM	Estimation of composite hydrodynamic roughness using airborne LiDAR
2:30 PM	Levee stability parameterization from airborne LiDAR and hyperspectral sensors in the Sacramento-San Joaquin River Delta
2:50 PM	Application of Satellite Based Laser Altimetry to Estimation of Surface Water Level and River Discharge
3:10 PM	Simulating canopy transmittance at variable zenith and azimuth using a combination of LiDAR echo classification, vertical intensity and spatial point density distributions

Session 2 Title: Surface Energy Balance\Evapotranspiration Modeling (iv), Chair: Joseph Alfieri

1:30 PM	Applying Remotely Sensed Energy Balance Models in Iran: Potentials and Limitations
1:50 PM	Utility of Thermal-based Dual-Temperature-Difference Technique for Surface Energy Balance Estimation under Strongly Advective Conditions during BEAREX08
2:10 PM	Towards An Improved Mapping of Evaporative Fraction and Evapotranspiration in Semi-Arid Regions
2:30 PM	Modeling evapotranspiration by remote sensing parameters and agro-meteorological stations
2:50 PM	Modeling sensible heat flux for sparse arid natural ecosystems using multispectral video imagery

03:10 PM – 03:40 PM

Coffee Break

03:40 PM – 04:40 PM

One Concurrent Session

Session 2 Title: Surface Energy Balance\Evapotranspiration Modeling (v), Chair: Ignacio Lorite-Torres

3:40 PM	Utilizing Remote Sensing Data to Analyze Urban Landscape Water Use
4:00 PM	Determination of surface resistance to evapotranspiration by remote sensing parameters in the semi-arid region of Brazil for land use change analyses
4:20 PM	Modeling Water and Heat Balance Components for Forest-Stepped Territories Using Satellite Data on Land Surface Characteristics