

Conference Agenda

Sunday, October 5, 2008	
12:00 pm to 4:00 pm	"Pro-Am" Golf Tournament (Meet outside of golf shop)
5:00 pm to 8:00 pm	Registration (Oakmont Room, 1 st floor near pool entrance)
6:00 pm to 8:00 pm	Reception (poolside)
Monday, October 6, 2008	
8:30 am to 9:00 am	Registration and Continental Breakfast (El Dorado Room and Patio)
9:00 am to 9:20 am	Welcome <i>Hyong Ossi, President SeaSpace Corporation</i>
9:20 am to 9:50 am	Current and Future Direction of SeaSpace Corporation <i>Oscar Martinez, COO SeaSpace Corporation</i>
9:50 am to 10:20 pm	Keynote Speaker: Using Spaceborne SAR for Coastal Ocean Monitoring <i>Dr. Xiaofeng Li, NOAA/NESDIS/STAR</i>
10:20 am to 10:40 am	Break
10:40 am to 11:00 am	Direct Broadcast Activities at Purdue University <i>Larry Biehl, Purdue University</i>
11:00 am to 11:20 am	KMA's Geostationary Meteorological Satellite <i>Dr. Ae-Sook Suh, Korean Meteorological Administration</i>
11:20 am to 11:40 am	TeraScan® as a Foundation for Communicating Environmental Satellite Information <i>Dr. Steven Miller, CIRA</i>
11:40 am to 12:00 pm	Impact of Global Warming on the East Coast of Korea <i>Dr. Kyung-Ae Park, Seoul National University</i>
12:00 pm to 1:00 pm	Lunch-"South of the Border" (Patio off El Dorado Room)
1:00 pm to 1:30 pm	NPOESS: Delivering the Next Generation of Global, Operational Earth Observations <i>Albert B. Spencer, Jr., NPOESS Integrated Program Office</i>
1:30 pm to 1:50 pm	International Polar Orbiter Processing Package, IPOPP <i>John Overton, Aerospace Corporation/IPO</i>
1:50 pm to 2:10 pm	NOAA/NESDIS Satellite Products and Direct Readout Overview <i>Thomas Renkevers, NOAA/NESDIS/OSDPD</i>
2:10 pm to 2:40 pm	Break
2:40 pm to 3:00 pm	Satellite Sensor Data: Real-time Data Processing Activities at the UNM Center for Rapid Environmental Assessment and Terrain Evaluation (CREATE) <i>Dr. John Van de Castle, CREATE, University of New Mexico</i>

3:00 pm to 3:20 pm	Sea-Ice Concentration Maps of the Ross Sea Derived from AMSR-E and Processed with TeraScan® <i>Dr. Flavio Parmiggiani, ISAC-CNR</i>
3:20 pm to 3:40 pm	Integrated Remote Sensing Applications in the Alps and Other Mountainous Areas <i>Christian Steurer, EURAC Research Title TBD</i>
3:40 pm	End of technical presentations for the day
4:00 pm	Board Bus
4:30 pm to 6:30 pm	Tour/Tasting/Dinner @ Orfila Vineyards
7:00 pm to 8:00 pm	Tour of SeaSpace Corporation
8:30 pm	Return to hotel
Tuesday, October 7, 2008	
8:30 am to 9:00 am	Continental Breakfast (El Dorado Room and Patio)
9:00 am to 9:20 am	Remote Sensing at the Sino-America Remote Sensing Center <i>Dr. Ji Xu, Sino-America Remote Sensing Center, Nanjing University</i>
9:20 am to 9:40 am	MODIS Processing System of MAFF/AFFRIT <i>Jizumi Nagatani, Nippon Hakuyo Electronics (NHE)</i>
9:40 am to 10:20am	From Data to Products to Weather Forecasting and Air Quality Monitoring: Direct Broadcast at Its Best <i>Dr. Allen Huang, University of Wisconsin-Madison</i>
10:20 am to 10:50 am	Break
10:50 am to 11:10 am	From Proteins to Antennas: Avoiding Keyholes in Multi-Axis Geometries <i>Dr. Julio Kovacs, SeaSpace Corporation</i>
11:10 am to 12:00 pm	Distinguished Lecturer: Automated Land Cover Change Monitoring for North America Using MODIS Data <i>Dr. Rainer Ressl, Conabio</i>
12:00 pm to 1:00 pm	Lunch-"Western BBQ" (Patio off El Dorado Room)
1:00 pm to 2:00 pm	New Products at SeaSpace Corp. <i>Eric Baptiste, SeaSpace Corporation</i>
2:00 pm to 2:20 pm	New Product: TeraPGS-II <i>Ethan Brown, Contractor-SeaSpace Corp. & Lara Brown, SeaSpace Corp.</i>
2:20 pm to 2:50 pm	Break
2:50 pm to 3:30 pm	What Do Users Want From SeaSpace? <i>Break into groups</i>
3:30 pm to 5:00 pm	Results of Groups and Panel Discussion <i>Panel of SeaSpace Employees</i>
5:00 pm	End of Conference – <i>Thanks For Attending!</i>

9:00 am – 9:20 am MONDAY

Hyong Ossi, President of SeaSpace Corporation
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(858) 746-1149

Welcome

Dear Valued Conference Participant,

I am glad you are able join us in our hometown of San Diego for SeaSpace's 18th Annual International Remote Sensing Conference. This year our theme is "Innovation", and we invite SeaSpace customers to share the innovation of their research, as we share the innovation that is currently happening at SeaSpace. Additionally there will be sessions where customers can give their input into the future direction of SeaSpace, and a Q&A session to get questions answered by a panel of SeaSpace employees.

SeaSpace is working hard take the strengths we possess and move forward to bigger and better products for our customers. Customers are the number one focus of SeaSpace, and everything we do is driven by you. Please feel free to contact me at any time with ideas or issues that need to be solved.

We look forward to hosting you in San Diego.

Sincerely,

Hyong Ossi
President

9:20 am – 9:50 am MONDAY

Oscar Martinez, COO of SeaSpace Corporation
OMartinez@seaspace.com

Current and Future Direction of SeaSpace Corporation

Since its inception in 1982, SeaSpace Corporation has become a world leader in the satellite ground station and image processing software field, and gone through many changes along the way. This presentation will cover SeaSpace's current focus, plus the vision for the company in the future.

Dr. Xiaofeng Li, NOAA/NESDIS/STAR
Xiaofeng.Li@noaa.gov

Using Spaceborne SAR for Coastal Ocean Monitoring

With the advance of microwave spaceborne synthetic aperture radar (SAR), we can actively monitor phenomena in the coastal ocean and marine atmospheric boundary layer at very high spatial resolution (on the order of tens of meters) in all weather conditions day and night. SAR observation is particularly useful in the coastal regions where clouds are usually present to cause observation problems for visible and infrared sensors. The ScanSAR beam mode SAR onboard Radarsat, Envisat, and ALOS satellites can provide swath coverage of about 450 km, wide enough to cover oceanic and atmospheric meso-scale features. SAR has long been used to monitor the sea surface wind field, vessel locations, oil spills, sea state and sea ice at NOAA. In this presentation, the use of SAR for near real time retrieval of these parameters is explained. In addition, the observations of oceanic surface waves, internal waves, tidal convergence fronts, shallow water bathymetry as well as marine atmospheric boundary phenomena, i.e., atmospheric gravity waves, vortex streets, hurricanes, will also be discussed.

Biography

Xiaofeng got his bachelor and master's degree from Zhejiang University and First Institute of Oceanography of China, respectively. He came to the US in 1992 and finished his Ph.D. at North Carolina State University in 1997. His major is in physical oceanography. Since then, he has been working as a research scientist at NOAA/NESDIS. He has been involved in Synthetic Aperture Radar data analysis and product/applications development. He is also a member of the NOAA CoastWatch and OceanWatch teams, where he works with international scientists on sea surface temperature algorithm development, sensor cal/val and satellite ground station operations for coastal oceanography. He has published more than 30 peer reviewed papers in scientific journals, and served as reviewer for NSF, NASA, NOAA, and ESA proposal evaluation.

10:40 am – 11:00 am MONDAY

Larry Biehl, Purdue University
biehl@purdue.edu

Direct Broadcast Activities at Purdue University

The presentation will cover the direct broadcast activities occurring at Purdue University during the past year including the development of the Purdue Real-time Satellite Information Gateway (PRESTIGE).

Biography

Mr. Biehl was a research engineer with Purdue University's Laboratory for Application of Remote Sensing (LARS) from 1974 to 2004. He participated in Skylab and Landsat MSS and Thematic Mapper research, and had major responsibilities in NASA-sponsored field research programs including field spectral data acquisition and calibration procedures, data preprocessing and software development. Since 2004, his responsibilities include managing the antenna, computers and image data for the Purdue Terrestrial Observatory (<http://www.itap.purdue.edu/pto/>). He has also been involved in helping initiate the IndianaView consortium and the development of the IndianaView (<http://www.indianaview.org/>) data archive server.

11:00 am – 11:20 am MONDAY

Dr. Ae-Sook Suh, Director of Environmental and Meteorological Satellite Division, Korean
Meteorological Administration
assuh@kma.go.kr

KMA's Geostationary Meteorological Satellite

Korea Meteorological Administration (KMA) has started the first Korean multi-purpose geostationary satellite program named by the Communication, Ocean and Meteorological Satellite (COMS), in cooperation with three other government ministries since 2003. Multi-missions of COMS are intended as not only meteorological and oceanic observation for the public welfare, but also in-orbit test of developed communication payload to be used for the next geosynchronous satellite.

Biography

Education

B.Sc., in Earth Science, Kyungbuk National University, 1979

M.Sc., in Meteorology, Seoul National University, 1982

Ph.D., in Atmosphere Science, Tokai University (Japan), 1997

Dissertation Title, Study on Characteristics of East Asia Monsoon using Satellite Remote Sensing Data

Job History

1982-1985, International Affairs Division, Korea Meteorological Administration(KMA)

1985-2004, Director of Remote Sensing Research Lab., Meteorological Research
Institute(METRI)/KMA

2004-2005, Director of International Affairs Division, Korea Meteorological
Administration(KMA)

2005-2006, Senior Forecaster of Forecast Division, KMA

2006-present, Director of Satellite Meteorological Division, KMA

Dr. Steven Miller, CIRA (Cooperative Institute for Research in the Atmosphere)
Miller@cira.colostate.edu

TeraScan® as a Foundation for Communicating Environmental Satellite Information

With its useful processing tools and powerful graphical display capabilities, TeraScan® provides an important software paradigm for satellite algorithm development and visualization for research and operational user communities alike. This talk highlights ongoing collaborative activities between the Naval Research Laboratory and the Cooperative Institute for Research in the Atmosphere to develop novel satellite applications based on multi-spectral/multi-sensor/model-fusion techniques. The scientific algorithm development is coupled to an operational processing environment wherein TeraScan® software plays a central role in the underlying data manipulation and graphical display of end-products. These value-added applications are then distributed to a broad spectrum of stakeholders, including Department of Defense assets operating internationally, National Weather Service forecasters, developers of the next-generation polar and geostationary satellite observing systems, as well as the general public. Specific examples of these interactions and impacts will be presented in the context of the NRL/FNMOC Satellite Focus effort, the NPOESS NexSat project, the NOAA GOES-R Satellite Proving Ground, and cooperation with Google to visualize TeraScan-generated imagery in the 'geo-browser' paradigm. These examples, while by no means representing a comprehensive survey of the activities leveraging TeraScan, underscore the fundamental importance of the package to the satellite remote sensing community and the wide array of users it serves.

Biography

Steven Miller received his BSc in Electrical and Computer Engineering from U.C. San Diego (1995), and MS (1997) and PhD (2000) in Atmospheric Science from Colorado State University. His areas of interest include satellite-based remote sensing of the Earth/atmosphere system from a wide assortment of sensor technologies including active/passive systems spanning the optical to microwave portions of the electromagnetic spectrum. From 2000 to 2007, he worked at the Naval Research Laboratory in Monterey, CA in the Satellite Meteorological Applications Section, where he developed numerous value-added satellite imagery tools for operational users (including mineral dust, snow cover, cloud optical properties, low cloud/fog, fire, thin cirrus, deep convection, natural color, contrail, volcanic ash, and nighttime low-light applications). His mineral dust detection algorithms for MODIS and SeaWiFS were among the first to exploit blue-band absorption properties. In 2005, Dr. Miller published the first satellite detection of a widespread bioluminescence phenomenon (the 'Milky Sea') using the DSMP Operational Linescan System. Dr. Miller joined CIRA in 2007 as a Research Scientist and Deputy Director, where he continues work in developing satellite techniques geared toward operational end-users.

Dr. Kyung-Ae Park, Department of Earth Science Education, Seoul National University
kapark@snu.ac.kr

Impact of Global Warming on the East Coast of Korea

Sea surface temperature (SST) is one of the most important physical parameters which influence climate and weather changes in the atmosphere and diverse processes in the ocean. Satellite-based global measurements of SST have provided us invaluable information of large-scale oceanic features in the upper ocean, particularly for global warming issues and abrupt change of climate on the globe. SSTs at coastal area have significant spatial and temporal variability induced by diverse forcings such as sea surface wind, bottom topography, rainfall, river discharge, heat flux at air-sea interface, land orography, and etc. However, the small-scale SST variations at the coastal area may be also remotely connected with the large-scale oceanic features far from the coastal region. It is relatively difficult to find a direct connection between the small, local oceanic feature and the large-scale phenomena. This study shows an example of the linkages of the two different scales: one in the east coast of Korea and the other in the North Pacific induced by global warming eventually through multiple air-sea interactions. We address the importance of global warming issues in the management of the coastal seas we live nearby.

Biography

Education

March 1983 – February 1987 : (Bachelor of Science) Earth Science, Seoul National University

March 1987 – August 1989 : (Master of Science) Oceanography, Graduate School, Seoul National University

March 1990 – August 1996 : : (Ph.D of Science) Oceanography, Graduate School, Seoul National University

Job History

Dec. 1994 – Dec. 1995 : Secretary of the Korean Society of Oceanography

Dec. 1994 – Dec. 1995 : Teaching Associate, Department of Oceanography, SNU

Sep. 1997 – Aug. 1998 : PostDoc at Seoul National University, Korea

Dec. 1998 – May. 2001 : PostDoc at University of Rhode Island, RI, USA

Mar. 2001 – Present : Lecturer at School of Earth and Environmental Science, Seoul National University, Korea

Apr. 2002 – Mar. 2005 : Research Associate, Research Institute of Oceanography, BK21/SEES, Seoul National University, Korea

Apr. 2005 – Sep. 2006 : Research Professor, Research Institute of Oceanography, Seoul National University, Korea

Oct. 2006 – Feb. 2007 : Research Professor BK21/SEES, Seoul National University, Korea

Feb.2007 ~ present : Assistant Professor, of Earth Science Education, College of Education, Seoul National University, Korea

Major fields of Research

Physical Oceanography, Satellite Oceanography

Albert B. Spencer, Jr., NPOESS Integrated Program Office, Silver Spring, MD
Co-Authors: Carl Hoffman and Crag S. Nelson
Benjie.Spencer@noaa.gov

NPOESS: Delivering the Next Generation of Global, Operational Earth Observations

In the next decade, weather forecasters, climate researchers, and global decision-makers will rely on the National Polar-orbiting Operational Environmental Satellite System (NPOESS) to meet many of their needs for remotely-sensed, Earth science data and information. The first flight of several new instruments will occur in 2010 with the launch of the NPOESS Preparatory Project (NPP). NPP will provide on-orbit testing and validation of sensors, algorithms, ground-based operations, and data processing systems and “bridge” between NASA’s Earth Observing System (EOS) research missions and the operational NPOESS mission. Beginning in 2013, NPOESS spacecraft will be launched into afternoon and early morning orbits to provide significantly improved operational capabilities and benefits to satisfy critical civil and national security requirements for space-based, remotely sensed environmental data. The last satellite in the two-orbit NPOESS constellation is expected to continue operations until about 2023-2026. A mid-morning orbit will be occupied by the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) Meteorological Operational (MetOp) spacecraft. The joint constellation of NPOESS and MetOp satellites will provide the international community global coverage from advanced atmospheric imaging and sounding instruments with a data refresh rate of approximately four to six hours. Several instruments on NPOESS will improve capabilities for climate monitoring and provide measurements of more than half of 26 essential climate variables.

Flight units for the NPP instruments are nearing completion and undergoing final characterization and calibration prior to integration onto the spacecraft. Key components of the NPOESS command, control, and communications system have already been installed and have passed preliminary tests. A key feature of the NPOESS architecture is SafetyNet™ - a system of 15 globally distributed, unmanned ground stations that will collect up to five times as much environmental data from space and deliver it to the user approximately four times faster than current polar-orbiting weather satellites. Installation and testing of the NPOESS Integrated Data Processing system at NOAA and DoD facilities will be completed in 2008, well in advance of the planned launch of NPP. NPOESS will provide faster delivery of higher (spatial, temporal, and spectral) resolution and more accurate real-time imaging and atmospheric sounding data for numerical weather prediction and improved weather and environmental forecasts and warnings, a critical mission for this new system. NPOESS is a key component of the Global Earth Observation System of Systems (GEOSS) that will provide essential real-time data to the international community to support weather forecasting, as well as continuity of critical data for monitoring, understanding, and predicting climate change and assessing the impacts of climate change on seasonal and longer time scales.

Biography

Albert B. Spencer, Jr., is the Chief Systems Engineer (Acting) for the tri-agency National Polar-orbiting Operational Environmental Satellite System Integrated Program Office. He is an Electronics Engineer with a background in major acquisition, primarily for environmental systems.

Mr. Spencer’s career spans over 30 years with NOAA, beginning with the NOAA National Weather Service Overseas Operation Division and their Engineering Division. He transitioned into major acquisition, working on major programs such as the Next Generation Weather Radar (NEXRAD), the Advanced Weather Interactive Processing System (AWIPS), and the 2000 Census Decennial before moving into space acquisition with the NPOESS program. He has received numerous awards, including the Department of Commerce highest awards, Gold and Silver, for his outstanding work in the area of acquisition that resulted in a major contribution to the United States in systems that increase warnings to the public, minimizing the lost of human life.

A native of Portsmouth, VA, Mr. Spencer holds a B.S. in Electrical Engineering from Howard University in Washington, DC.

1:30 pm – 1:50 pm MONDAY

John Overton, Aerospace Corporation/NOAA IPO
John.Overton@noaa.gov

International Polar Orbiter Processing Package, IPOPP

The International Polar Orbiter Processing Package is a software package that is critical to the Direct Broadcast (DB) user community throughout its transition from EOS to NPOESS. IPOPP is the primary processing package that will enable the DB community to process, visualize, and evaluate NPOESS Preparatory Project (NPP) Sensor and Environmental Data Records.

Biography

NPOESS Direct Readout Manager: Involvement with Environmental Satellites and Direct Readout with both government and industry since 1972 starting with the USAF Defense Meteorological Program, NOAA, NASA EOS, and the future polar system NPOESS.

Thomas Renkevens, NOAA/NESDIS/OSDPD, Camp Springs, MD
Thomas.Renkevens@noaa.gov

NOAA/NESDIS Satellite Products and Direct Readout Overview

The National Environmental Satellite Data and Information Service (NESDIS) produces and distributes many satellite products in near real-time to meet the needs of operational users. Products are made using data from geostationary satellites which are situated above a fixed location on the equator and image the earth on a continuous basis, as well as from polar orbiting satellites which provide two views of the same location of the earth every day at fixed local times. These products provide information on land, ocean and atmospheric parameters. Product information and details as well as near-real time imagery can be found on the NESDIS Office of Satellite Data Processing and Distribution web site at <http://www.osdpd.noaa.gov/ml/index.html>

This presentation will provide an overview NESDIS satellite data, processing, and distribution, and emphasize the various direct readout capabilities available from NOAA satellites that serve the direct readout community. A brief description will be provided on the future of the next generation of geostationary weather satellites, the GOES-R series, from expected products to implications of direct readout users to accommodate the tremendous improvements in satellite technology. Much more information on direct readout capabilities will be available at NOAA's Direct Readout Conference Dec 8-12 in Miami, FL. See <http://directreadout.noaa.gov/miami08/> for further information.

Biography

Tom Renkevens is a true user of all sorts of weather data. With three weather radios, more than a dozen temperature sensors in and around the house, several different types of barometers, handheld anemometers and altimeters, similar instrumentation on his watch, all culminating in his backyard Davis weather station with information available on his blackberry, Tom is never far from weather data.

Tom has been using satellite data for over 20 years. While earning his Bachelors Degree in Meteorology from Millersville University of Pennsylvania, and his Masters Degree in Meteorology from the University of Oklahoma, Tom was very involved in satellite display, use, and interpretation using the McIDAS software system. Tom's first job with NESDIS was with the Satellite Analysis Branch in the World Weather Building in Camp Springs, MD where he was a shift working satellite meteorologist. There he analyzed data from geostationary and polar orbiting satellites, from NOAA, NASA, and DoD platforms, to analyze a variety of phenomena including volcanic ash, tropical cyclones, flash flooding, smoke and fire, and snow and ice cover. Following the shift work years, Tom moved into positions of staff meteorologist and operations manager, overseeing the production of satellite data and products in the system known as SATEPS, which produces, for example, satellite images and products as seen on AWIPS.

In the fall of 2004, Tom took a position with the GOES-R Program and worked there as Assistant Ground Segment Project Scientist through early 2008 where he returned to his roots at the Satellite Services Division in the World Weather Building as part of a new User Services group.

Tom is a Member of the American Meteorological Society, the National Weather Association, a trained Skywarn Spotter for the National Weather Service, a member of CoCoRaHS, and posts his weather station information on line and is used in NWS forecast models. He has received the Department of Commerce Silver Medal Award, Bronze Medal Award, and the NOAA Administrators Award. His 3 year old daughter enjoys looking at clouds, especially approaching thunderstorms.

Dr. John Van de Castle, CREATE, University of New Mexico
jvc@unm.edu

**Satellite Sensor Data: Real-time Data Processing Activities at the UNM Center for Rapid Environmental Assessment and Terrain Evaluation (CREATE-
<http://create.hpc.unm.edu>)**

Satellite sensor data provide important information over extensive areas. However, they are usually not thought of as real-time environmental sensor data since most satellite information is used after post-processing from archive centers days, months, or longer after initially acquired. However, with the advance in multi-core processor speed and data storage technologies, direct broadcast data transmission from environmental satellite systems can now be accessed on a near real-time basis. Processing the raw satellite data, particularly from the MODIS sensor of the Terra and Aqua spacecraft can now be achieved within minutes of a satellite overpass on an automated basis. This provides an important data source for environmental disturbance events including hurricanes, storms, flood, fire, health impacts and other applications. Projects at CREATE include work with the National Science Foundation's Long Term Ecological Research sites, the State of New Mexico Department of Health and the University of New Mexico Earth Data Analysis Center (EDAC).

Biography

Dr. John Vande Castle received his Ph.D. degree in Biology and Computer Science from the University of Wisconsin in 1985. His post-doctoral work included use of AVHRR and Landsat-TM data in aquatic applications with Tom Lillesand's Environmental Remote Sensing Center in the Space Science & Engineering Center at the University of Wisconsin-Madison. He is a Research Associate Professor in the department of Biology at the University of New Mexico, the Associate Director for the Center for Rapid Environmental Assessment and Terrain Evaluation (CREATE), and an Associate Director for the Network Office for NSF's Long Term Ecological Research (LTER) Program.

Dr. Flavio Parmiggiani, ISAC-CNR, Bologna, Italy
f.parmiggiani@isac.cnr.it

Sea-Ice Concentration Maps of the Ross Sea Derived from AMSR-E and Processed with TeraScan®

We present a processing scheme, based on TeraScan software, which provides a measure of total sea-ice in specific areas of polar regions. The scheme makes use of the Sea-Ice Concentration (SIC) maps, derived from AMSR-E images, produced and made available, on a daily basis, for both polar regions by the Institute of Environmental Physics of the University of Bremen (www.iup.uni-bremen:8084/amsr/amsre.html) .

The scheme was applied to the area of the Ross Sea which is of particular interest as the Italian Antarctic Base "Mario Zucchelli Station" (MZS) is located at Terra Nova Bay (Ross Sea) . The scheme consists of the following steps:

1. downloading of the original data file in HDF format;
2. conversion of the HDF file to TDF (TeraScan Data File) format;
3. geo-referencing of the TDF file;
4. masking of the land part of the image;
5. extraction of the Ross Sea area from 60S to 76S and from 150E to 150W;
6. production of the final image of the Ross Sea.

Total sea-ice (as Concentration x Area) was computed in a sub-region of the Ross Sea extending from 66S to 76S and from 170E to 170W, from 1 DEC (day 0) to 9/10APR (day 130) for the austral summers of 2004, 2005 and 2008.

Results of this analysis will be presented and discussed.

Biography

Date and place of birth: 19 July 1945 - Campagnola E., Italy

1969-70 : 'Laurea' degree in Physics at the University of Milan.

1971-72 : Research Fellow at Consiglio Nazionale delle Ricerche (CNR), Milan.

1973-89 : Researcher at the CNR.

1989-2005 : Prime Researcher at ISAC-CNR.

2005-Present : Director of Research at ISAC-CNR.

From 1970 to 1981 he has been working in the field of biological cybernetics(motonurone models, muscle properties, motor control).

Since 1982, after the transfer to a new CNR Institute, he has been working in the field of image processing and remote sensing.

Since 1989 he is responsible of the satellite receiving station at the Italian Antarctic Base "Mario Zucchelli Station" at Terra Nova Bay, Antarctica.

In the academic year 1992-93, he was Visiting Scholar at the Scott Polar Res. Inst., Univ. of Cambridge, U.K. For the same year, he was Overseas Fellow of Churchill College, Cambridge, U.K.

Since 1992 he has been working on marine applications of SAR images (sea-ice, oil spills, waves spectra, wind retrieval).

In the last 12 years he was partner in 4 projects funded by the EU (3rd, 4th and 5th Framework Programmes).

His current scientific interests concern with satellite image interpretation, using both optical and radar images.

Christian Steurer, EURAC Research
christian.steurer@eurac.edu

Integrated Remote Sensing Applications Mountain Regions

The European Academy Bozen/Bolzano (EURAC), a competence center for applied research in mountain regions is a private non-profit organization located in the heart of the Alps, the largest mountain chain in Central Europe. Due to this exceptional location the area of Bolzano is particularly affected by climate change, in particular glacier retreat and natural hazards such as landslides and flash floods. The Institute for Applied Remote Sensing, which is one of the 11 institutes collocated at EURAC, is using Remote Sensing techniques as the principal tool to explore and monitor this vulnerable Alpine environment.

The main research fields of the Remote Sensing Institute are Climate Change, Snow and Ice, Air Quality, Land Use and Ecosystems as well as Risk and Vulnerability. Main research focus is the development of Earth observation data based applications and services for the Alps and other mountainous regions.

The generation of such services is a scientific task, based on the development of procedures that add significant value to any satellite sensor's raw data. Processed and analyzed remote sensing data are integrated into these services complementary to in-situ data.

Currently, the Institute for Applied Remote sensing is setting up its own receiving station for direct access to satellite data in order to better monitor the dynamic changes of ecosystems. This Receiving station is located on the Rittner Horn (2230m). The data receiving system is configured for the reception of LEO satellite data with data rate in X-Band up to 320 Mbps and a parabolic antenna from Seaspace with a diameter of 5 m. By means of a radio link (13Ghz) the received data is transferred from the station to the EURAC premises, which is located down in the adjacent valley and equipped with the processing facilities (cluster, archive).

Based on the data provided by the MODIS sensor of TERRA and ACQUA satellites, the following products are generated in NASA EOS HDF Format: MOD01-MOD09 and MOD35. The installed data management system deals with all incoming data; those acquired by the antenna in near-real-time, those received by external providers and as well those produced by the processing system itself. The data archive is composed of a disc system for on-line recording and a tape library for near-line archiving.

Biography

Christian Steurer is the technical head of EURAC's Institute for Applied Remote Sensing and Chief System Administrator of the EURAC's service department for Information and Communication Technology, with major expertise on IT-security, networking and IT-infrastructure. He is specialized in developing IT and communication systems including radio communication and the respective infrastructure.

Christian Steurer graduated at the Politecnico of Milan in 1997 as telecommunication engineer and obtained his accreditation to exert the profession in 1997 after the Public Examination. During the study he worked as teacher of physics, mathematics, informatics and electrical plants. From 1997 until 2002 he was working in the private industry for a regional telecommunication company as head of department.

Since 2002 he is working at the European Academy of Bolzano (EURAC) in the Information and Communication Technology and was mainly involved in the start-up process of the newly created Institute for Applied Remote Sensing, which deals with remote sensing technology and image processing. He is responsible for the implementation and the operation of the Satellite Receiving Station, implemented on the high plateau of the Rittner-Peak and the respective processing systems.

Publications

Schneiderbauer, S., Zebisch, M., & Steurer, C. (2007) Applied remote sensing in mountain regions. Mountain research and Development, 27, 286-287.

Invited speeches

Zebisch, M., Ortner, S. and Steurer, C., (2007). Vulnerable Mountains from Space. 15th Session of the Commission on Sustainable Development, UNO, New York.

9:00 am – 9:20 am TUESDAY

Dr. Ji Xu, Sino-America Remote Sensing Center, Nanjing University
xj_ygzx@nuist.edu.cn

Remote Sensing at the Sino-America Remote Sensing Center

9:20 am – 9:40 am TUESDAY

Jizumi Nagatani, Nippon Hakuyo Electronics (NHE)
nagatani@affrc.go.jp

MODIS processing system of MAFF/AFFRIT

MAFF/AFFRIT has received MODIS data from 2002, and has processed and distributed high-level MODIS products such as MOD09, NDVI, etc. using a TeraScan® system and DRL's software. TeraScan® processing system is used for operational basis and DRL's software are used for R&D applications. For the future, we are preparing TeraScan® RaMPS™ system and IPOPP software which will be used on the grid computing system.

Biography

Senior system engineer of Nippon Hakuyo Electronics(NHE) and resident engineer of AFF Research Information Technology Center MAFF, Japan (MAFF/AFFRIT).

Dr. Allen Huang, Cooperative Institute for Meteorological Satellite Studies (CIMSS)
Space Science and Engineering Center (SSEC), University of Wisconsin-Madison
allenh@ssec.wisc.edu

From Data to Products to Weather Forecasting and Air Quality Monitoring: Direct Broadcast at Its Best

Cooperative Institute for Meteorological Satellite Studies (CIMSS) of University of Wisconsin-Madison has been developing processing software to convert level 0 (raw data) to level 1 (calibrated and navigated) data, and level 1 to level 2 (retrieval of sounding profile, clouds, land and ocean surface temperature et al.) Since early 1980 processing packages such as International TOVS Processing Package (ITPP), International ATOVS Processing Package (IAPP), International MODIS and AIRS Processing Package (IMAPP), and International Polar Orbiter Processing Package (IPOPP) enable global users the capability to produce timely products and information for weather forecast and environmental monitoring and research, just to name a few. Recently, CIMSS advances the DB effort in developing Numerical Weather Prediction (NWP) and air quality models to direct assimilate real time products (i.e. clouds, water vapor, and aerosol) for the demonstration of optimal use of DB products.

In this presentation we will overview the progress of current NOAA and NASA funded processing packages and those under developed and proposed projects to freely distribute DB version of CIMSS Regional Assimilation System (DB CRAS) and Infusion satellite Data into Environmental Air quality Applications (IDEA) for international community, IDEA International (IDEA-I). We will then summarize these DB activities which are highly relevant to the Sea Space goal of enabling and supporting global DB users in improving forecasting, natural hazard monitoring, process studies, resource management, detection and control of environmental risks and other unique timely regional applications.

Biography

Dr. Hung-Lung Huang, also known as Allen Huang, is a distinguished scientist of the University of Wisconsin-Madison and a fellow of International Society for Optical Engineering (SPIE). Dr Huang received his M.S. and Ph.D. degrees from the Meteorology Department of the University of Wisconsin, Madison in 1986 and 1989, respectively.

Since 1989, Dr. Huang has been with the Cooperative Institute for Meteorological Satellite Studies (CIMSS) of University of Wisconsin-Madison as a research scientist, conducting remote sensing research in the areas of atmospheric sounding retrieval, information content analysis, satellite and aircraft high-spectral resolution sounding instrument data processing, data compression, instrument design and performance analysis, cloud-clearing, cloud property characterization, synergistic imaging, and sounding data processing and algorithm development. He also advises and supports both national and international M.S. and Ph.D. students and visiting scientists.

So far Dr. Huang has published/co-author one book chapter, a National Academies committee report, 49 peer-reviewed papers, 173 conference papers, conducted 6 international training workshops, and made 47 invited/international seminars and presentations.

10:50 am – 11:10 am TUESDAY

Dr. Julio Kovacs, SeaSpace Corporation
jkovacs@seaspace.com

From Proteins to Antennas: Avoiding Keyholes in Multi-Axis Geometries

Drawing on the similarity between multi-axis pedestal geometries and short proteins, I'll show a basic approach, under development, to simultaneously move all angles in the pedestal so as to automatically avoid keyholes in an optimal way, especially for tracking fast-moving targets. I'll show a couple of movies of how the current version works as applied to our AXIOM geometry.

Biography

Julio Kovacs is a Technology Research Scientist at SeaSpace Corp. He received his M.A. and Ph.D. degrees in Mathematics from The Johns Hopkins University in the areas of differential geometry and mathematical physics. Before joining SeaSpace last June, he was at The Scripps Research Institute in La Jolla, CA, where he developed analytical and computational methods and software for biomedical applications, especially in the areas of 3D electron-microscopy image processing and protein docking and flexibility. Previously he was with the National Atomic Energy Organization in Argentina, working on modeling and simulation pertaining to oxidation phenomena in nuclear reactors, and was professor at the National Technological University in Argentina, doing research in robotics and missile navigation systems.

Dr. Rainer Ressler, Conabio
Rainer.Ressler@conabio.gob.mx

Automated Land Cover Change Monitoring For North America Using MODIS Data

The profound impacts of land use and land cover change (LULCC) on the environment are widely known. Many of these impacts result from broad scale disturbances and activities, such as fire, insect infestations, urban growth, change of natural lands into agriculture as well as abandonment both due to economic reasons, deforestation, or gradual changes in ecosystem integrity. These changes influence critical habitats required to sustain biota, and have therefore a high importance to biodiversity related issues. Broad-scale changes pose one of the most important threats to environmental resources but are difficult to measure and to quantify.

This project will use remotely-sensed data to develop annual, continental-scale land cover and land change products for North America. For this purpose a partnership between Mexico, Canada, and the U.S. was formed. Each annual product will be produced primarily from MODIS (250m) data, using Landsat-resolution (30m) data for verification and calibration at a later stage.

Currently cloud-free monthly 250m MODIS composites of channels 1 to 7 are used, applying a downscaling algorithm to the 500m bands. Besides of the pure spectral information value-added products such as vegetation indices (NDVI/EVI) and Land surface temperature (LST) as well as auxiliary information (precipitation, digital elevation model, road and population density) will be included to train the classification algorithm. Currently a non-parametric tree classifier (C5.0/See5) is applied to the data with the main goal to derive the yearly land cover information and to describe and discriminate regional natural vegetation and ecosystem dynamics from the desired land cover changes.

In the first phase each country will classify its national territory applying the same classification scheme. Next, the national products will be combined applying a jointly developed protocol for the cross-border regions. In a later stage, the annual land cover products will be used to derive land cover changes on a regional and continental scale.

Biography

Dr. Ressler is Director of Geomatics at the National Commission for the Knowledge and Use of Biodiversity (CONABIO) in Mexico city and is heading the teams of GIS, remote sensing and data georeferencing. Main tasks are the development and maintenance of a satellite remote sensing based operational fire detection system for Mexico and central America as well as the development of GIS and remote sensing based products and cartography for the monitoring of Mexican ecosystems with a special focus on biodiversity relevance. In addition his group is developing methods for georeferencing large databases of specimen and species collections of México.

Dr. Ressler holds a masters degree in geography of the University of Munich (LMU) and he received his PhD at the German Aerospace Center (DLR-DFD) in the year of 1999. During his time at DLR he headed the group for process automation for satellite image processing.

Dr. Ressler was project leader and co-investigator of several international research projects funded by NATO, UNESCO, USAID, WorldBank and BMBF.

He is currently involved in several multi-national cooperations with Germany, EU and Canada for ecosystem and land use change monitoring applying advanced remote sensing and GIS techniques. His main fields of expertise are GIS, satellite remote sensing, ecosystem monitoring and modeling.

Eric Baptiste, SeaSpace Corporation
ebaptiste@seaspace.com

New Products at SeaSpace Corporation

This presentation will review new products and programs at SeaSpace Corporation including:

- WDSIII (Weather Decision Support III) our shipboard systems
TacSAS: Tactical Satellite Acquisition System
TeraPGSII the new TeraScan Product Generation System
RAMPS: Rapid MODIS Processing System (all level 2 products in 7-12 minutes)
- AIRS processing
- WORLDMET: SeaSpace's Satellite and Environmental Data Distribution and Processing System

Biography

Education

*Master of Science in Marine & Atmospheric Sciences, May 2003
State University of New York at Stony Brook*

*Bachelor of Science in Atmospheric & Oceanic Sciences ,Meteorology Track, May 2000
Minors: (1) Marine Environmental Science (2) Environmental Studies
Magna Cum Laude, Phi Beta Kappa
State University of New York at Stony Brook*

*Class IV Certificate in Meteorology, December 1990
World Meteorological Organization Regional Training Center
Caribbean Meteorological Institute, Barbados, West Indies*

Work History

- *Associate Staff Scientist 2006 to present. SeaSpace Corporation.*
- *Business Development Manager.*
- *Project Manager: United States Coast Guard Polar Ice Breakers.
Program Manager: Tactical Satellite Acquisition System, Weather Decision Support III & WorldMET.*
- *Senior Project Engineer. SeaSpace Corporation, Poway, CA. 2003-2006. Build, install and support an integrated system of hardware and software (TeraScan®) for the automated reception and processing of data from meteorological, defense and environmental satellites at both land based and shipboard international locations. Provide training to both military and civilian customers. Serve as the engineering liaison between the customer and SeaSpace.*
- *Training Coordinator SeaSpace Corporation, 2003 - Present*

2:00 pm – 2:20 pm TUESDAY

Ethan Brown, Contractor to SeaSpace
Lara Brown, SeaSpace Corporation
lbrown@seaspace.com

TeraPGS-II

We will briefly discuss the goals and high-level design of TeraPGS-II, followed by a demonstration of its capabilities.

Biography-Ethan Brown

Ethan has spent most of his 20+ years as a geophysicist and software engineer developing scientific and numeric applications. He is currently a Senior Systems Architect with expertise in database design, application development, network systems monitoring, and interoperability between open source and proprietary information systems.

Biography-Lara Brown

Lara has worked as a software engineer for 18+ years, the last 2 with SeaSpace. She currently is lead developer for the AXYOM antenna software and the TeraPGS-II product.

SeaSpace Group Moderators

1. Catherine Brambila, Customer Support
2. Jane Zeer, Technical Publications
3. Lara Brown, Software Developer
4. TBA

What Do User Want From SeaSpace?

Conference participants will split into four groups, each led by a SeaSpace employee. Each group will be led through a series of discussion questions by their moderator. The topics for discussion are as follows:

1. What are you happy/not happy with in regards to our software (TeraScan® and TeraVision™)?
2. TeraScan®/TeraVision™ is currently supported only on LINUX, how do you feel about this?
3. Are you happy with SeaTel antennas?
4. What of value do our competitors have that SeaSpace does not?
5. How do you rate customer support and what do you need more of?
6. What are SeaSpace's strengths?
7. What would you like to see SeaSpace doing as we move forward?
8. What future projects are you working on that SeaSpace can help you with?
9. Anything else?

3:30 pm – 5:00 pm TUESDAY

SeaSpace Panel

Eric Baptiste, Associate Staff Scientist
Oscar Martinez, COO
Dr. Hae-Yong Shin, Chief Science Officer
Dr. Kota Prasad, Senior Applications Engineer
Ted Young, Senior Systems Design Architect
Tony Burunoff, Customer Support Manager

Panel Discussion and Results from Previous Group Activity

Moderators from the previous discussion will present results and conference participants will have an opportunity to ask questions to the panel of SeaSpace employees.