

15-17 March 2016 | Auditorio de Tenerife | Santa Cruz de Tenerife, Spain

PROGRAMME



Research, Technology and Innovation

→ 2016 CONFERENCE ON BIG DATA FROM SPACE – BIDS'16



Jointly organised by ESA, SatCen and JRC.
In collaboration with IAC, PCTT and the Council of Tenerife.

Detailed technical and scientific information on the workshop
can be found at: <http://congrexprojects.com/bids16>



Big Data App



Organizational Challenges for Big Data Space Missions (Plenary Session) Chamber Hall				Chair: M. Sauvage
11:30 – 13:10	Big Data and the Synergy between Missions at the Infrared Processing and Analysis Center (IPAC)			Keynote: H. Teplitz
12:10 – 12:30	Orchestrating the Software Development and the Scientific Data Production in a Map Reduce Paradigm			C. Dabin
12:30 – 12:50	Big data, big challenges and new paradigm for the GAIA archive			C. Arviset
12:50 – 13:10	Needs for the quest of Earth analogs: the PLATO space-based mission			M. Deleuil
13:10 – 15:00	Lunch Break			
Data Access and Sharing (Parallel) Chamber Hall				Chair: J. Graf
15:00 – 16:40	NOAA's Big Data Partnership: Leveraging the Value of Data With Industry			A. Gaskins
15:20 – 15:40	Enabling High-Performance Access To Big Data from Space			M. Pritchard
15:40 – 16:00	Enabling Big-Data Science Workflows in Earth Observation: a European Research Networking Perspective			J. Tendel
Big Data Impact on Industry (Parallel) External Hall			Chair: F. Serban	
	Creating Value from (Big) Spatial Data - the BDVA Perspective and Actions			Keynote: A. Maneri
	Images Retrieval from Big Data Archives for Copernicus Land Monitoring Services			L. Brodsky

Data analysis and visualisation in a symbolic workspace with Wolfram Language	Dr Robert M. Cook, Christopher Jordan
Managing Research Objects in Earth Science: the Ever-EST Virtual Research Environment	José Manuel Gómez-Pérez, Raul Palma
INFOaaS Stimulus	Sylvie Barrau-Huguet, Febrier Brigitte, Vallois Frederic
NASA World Wind: the European Contribution	Jakub Balhar, Moise Jurca, Paulo Sacramento

notes

DAY 2

Wednesday 16 March 2016

9:00 – 10:20		Exploitation Platforms 1 (Plenary) Chamber Hall		Chair: F. Jocteur-Monrozier
9:00 – 9:20	Mission Exploitation Platform PROBA-V	E. Goor		
9:20 – 9:40	German Copernicus Data Access and Exploitation Collaborative Infrastructure	C. Reck		
9:40 – 10:00	The Technology and Atmospheric Mission Platform (TAMP)	S. Natali		
10:00 – 10:20	Exploitation Platforms Open Architecture	S. Pinto		
Coffee Break				
10:50 – 12:30		Exploitation Platforms 2 (Parallell) Chamber Hall		Chair: M. Hemmje
10:50 – 11:10	Facilitating Cooperative Research, Development and Operations in Earth Observation	Chair: S. Albani		Data Science Skills (Parallell) External Hall
		C. Briese		
11:10 – 11:30	Towards a JRC Earth Observation Data and Processing Platform	P. Soille		Keynote: F. Marzano
11:30 – 11:50	A Versatile Cloud Based Platform For Earth Observation Interdisciplinary Activities	O. Melet		
R. Tergujeff				

11:50 – 12:10	SPARKINDATA: Earth Observation Application Marketplace Hosted in the Cloud	C. Jaber	Education and Skills: Perspectives from Big Data Value Added Association (BDVA)	F. Serban
12:10 – 12:30	Enabling Collaboration between Space Agencies Using Private and Cloud Based Clusters	M. Poncet	The D4SCIENCE Infrastructure to Support Academic Courses	N. Nardi
12:30 – 14:00	Lunch Break			
14:00 – 15:40	High Performance Computing and Optimisation (Parallell) Chamber Hall	Chair: P. Soille	Advances in Big Data using OGC Standards (Parallell) External Hall	Chair: G. Percivall
14:00 – 14:20	High-Performance Computing for Soil Moisture Estimation	S. Elefante	Standards for Big Geo Data: (How) Can They Help?	Keynote: P. Baumann
14:20 – 14:40	Monitored System for Geospatial Big Data Thematic Map Prototype	J. Lozano		
14:40 – 15:00	MUSCATE: multi-satellites, multi-sensors and multi-temporal THEIA Data and Services Infrastructure	S. Baillarin	Discrete Global Grids for handling Big Data from Space	P. Strobl

Big Data Apps and Value

Linking Big Data from Space to Apps on Earth

Return on Experience and Perspectives about How to Turn Big Data from Space into Big Value on Earth

Uwe Voges, Peter Becker and Udo Einspanier

Olivier Flebus

DEMOS

Integration of tools for large-scale exposure and vulnerability assessment: into the remote geospatial processing environment of the European Space Agency: an experience on "SENSUM Tools"

Daniele De Vecchi, Fabio Dell'Acqua

Big Data analytics for Earth Observation Data

Marjorie Allain-Moulet, Gwenael Souille, Eric Guzzonato, Agusti Canals

Interactive Sub-setting of 100s of Tbytes of Land ECVs

Said Kharbouch, Jan-Peter Muller

Global Scale Analysis with Earth Engine

Noel Gorelick

Challenges and Achievements in Supporting Research and Service Development for Big Data

Jose Manuel Delgado Blasco, Giancarlo Rivolta

Big Data on Tiny Servers - USB hard drives as portable OGC-compliant servers

Mark Sarojak, Dave Brett

Change Detection and Multitemporal Analysis	
15:00 – 15:20	An Omnibus Likelihood Ratio Test Statistic and its Factorization for Change Detection in Time series of Polarimetric SAR Data Allan A. Nielsen, Knut Conradsen, Henning Skriver
15:20 – 15:40	Big Data from Mars: Design of Global Planetary Data Analysis Tools Panagiotis Sidiropoulos, Jan-Peter Muller
15:40 – 16:10	Flood Forecasting and Monitoring using Sentinel-1 and SMOS Satellites: a Supervised Predictive Modeling Pierre Villard, David Bastide, Jerome Gasperi, Yann Kerr, Richard Moreno
16:10 – 16:50	Interactive Sub-setting of 100s of Tbytes of Land ECVs Said Kharbouch, Jan-Peter Muller
16:50 – 17:10	Temporal Characterization of the Remote Sensors Response to Radiation Damage in L2 Ruben De March, Deborah Busonero, Rosario Messineo, Alessandro Bemporad, Francesco Vaccarino, Angelo Fabio Mulone, Andrea Fonti, Mario Lattanzi
Change Detection and Multitemporal Analysis	
17:10 – 17:30	OSIRIDE: Prototype System for Content Based Image Retrieval in Satellite Imagery Catalin Cucu-Dumitrescu, Florin Serban, Adrian Stoica, Corina Vaduva, Michele Iapalo, Mirela Constantin
17:30 – 17:50	An Assessment of Similarity Measures for CBIR Systems Radu Tanase, Anamaria Radoi, Corina Vaduva, Mihai Datcu
17:50 – 18:10	Patch-Based Multispectral Image Classification Assessment for Sentinel-2 Data Analysis Florin-Andrei Georgescu, Mihai Datcu, Dan Raducanu
18:10 – 18:30	Data Stream Processing for Situational Awareness Roger King, Sam Abuomar and Nicolas Younan
Image and Data Mining for Big Data (Plenary) Chamber Hall	
15:00 – 15:20	Deimos GS4EO Over Entice: a Cost Effective Cloud-based Solution to Deploy and Operate Flexible Big EO Data Systems with Optimized Performance J.J. Ramos Perez
15:20 – 15:40	Task Allocation in High Performance Processing of Geospatial Data V. Syrris
15:40 – 16:10	Coffee Break
16:10 – 16:50	Mining Sensor Data Chair: PG. Marchetti Keynote: M. Datcu
16:50 – 17:10	Structural classifiers for contextual semantic labeling of aerial images H. Randrianarivo
17:10 – 17:30	Deep Learning Approach for Remote Sensing Image Analysis A. Benoit
17:30 – 17:50	Priority Scores Based on Novelty Detection to Improve the Efficiency of Ground Operations J. Biancat

DAY 3

Thursday 17 March 2016

Big Data Processing (Plenary) Chamber Hall		Chair: C. Arviset
9:00 – 9:20	Big Data Starts On-Board	R. Vitulli
9:20 – 9:40	Processing the Gaia Data in CNES : the Great Adventure into Hadoop World	L. Chaoul
9:40 – 10:00	Big Data for Spatial Oceanography - Application to ESA/EU Sentinel Constellation Mission	F. Paul
10:00 – 10:20	Big Data Technologies Applied to Space Missions: Data Processing, Access and Visualisation	G. Eynard-Bontemps
10:20 – 10:50	Coffee Break	
Big Data Analysis and Analytics (Parallel) Chamber Hall		Chair: V. Bennett
10:50 – 12:30		
10:50 – 11:10	Analyzing Big Remote Sensing Data via Symbolic Machine Learning	V. Syrris
11:10 – 11:30	Big Data Meets Linked Data - What are the Opportunities?	M. Koubarakis
		Y. Tao
		D. Cristobal

On the Effect of Air Pollution on Clinical Records of Diabetes-Related Patients	Andrea Marinoni, Paolo Gamba
Using ELK Stack to Index, Analyze and Visualize GAIA DPCT Infrastructure Log Data	Andrea Fonti, Ruben De March, Rosario Messineo, Angelo Fabio Mulone, Fabio Filippo, Fabio Sella, Carmelo Manetta
Toolboxes, Machine Learning, and Grid Processing	
NANSAT - a scientist friendly Python toolbox for processing 2D satellite EO and model raster data	Aleksander Vines, Morten Wergeland Hansen, Asuka Yamakawa, Tor Olaussen, Torill Hamre, Anton Korosov
Broadview Radar Altimetry Toolbox	Albert Garcia-Mondejar, Roger Escola , Gorka Moyano, Monica Roca, Miguel Terra-Homem, Ana Friaças, Fernando Martinho, Ernst Schrama, Marc Naeije, Americo Ambrozio, Marco Restano, Jerome Benveniste
High-Accuracy Photo-z Measurements for Galaxies Based on SDSS-III Photometry	Alexander Meshcheryakov, Sergey Gerasimov, Valentina Glazkova
A Flexible and Dynamic Approach to Cope with the New Challenge of Big Data in Earth Observation	Blażej Fitzryk, Giovanni Sabatino, Roberto Cuccu, Julio Carreira, Giancarlo Rivolta
SAR Altimetry Processing On Demand Service for Cryosat-2 and Sentinel-3 at ESA G-POD	Jérôme Benveniste, Salvatore Dinardo, Américo Ambrózio, Marco Restano

Data Catalogues and Management	
Multibillion scale catalogues in the GAIA Archive Database at ESAC	Juan González-Núñez, Jesús Salgado, Raúl Gutiérrez-Sánchez, Juan Carlos Segovia Serrato, Jose Hernandez, Christophe Arviset, Fernando Aguado-Agelet, Bruno Merin, Will O'Mullane
A Footprint Database of the Herschel Space Observatory	Laszlo Dobos, Erika Verebelyi, Csaba Kiss
The Benefits of using XML Technologies in Astronomical Data Retrieval and Interpretation	Guy Beech
Towards Securing Reproducibility of Earth Science Research Findings through Automatic Policy Enforcement based on Machine Readable Data Management Plans	Felix Engel, Heike Görzig, Matthias Hemmje
Data Science, Data Analytics, and Visualisation	
Web Based NASA Big Data Visualization and Analysis	Emily Law, George Chang, Richard Kim and Shan Malhotra
Improving Earth Science Data Discoverability and Use through Metadata Relationship Graphs, Virtual Collections and Search Relevancy	Kevin Murphy, Dawn Lowe, Daniel Pilone and Andrew Mitchell
Innovative Ways of Visualizing Meta Data in 4D Using Open Source Libraries	Jakub Balhar, Jonáš Veselka and Yann Voumard

11:30 – 11:50	ESA Sky: A tool to discover astronomical data from ESA missions	J. Salgado	An Unsupervised Implementation of the P-SBAS DINSAR Algorithm for Processing Large Data Volumes through Distributed Computing Infrastructures within Operational Environments	I. Zinno
11:50 – 12:10	Data Access Services at DPCT to Support Scientists' Online and Offline Data Analysis	R. Messineo	Data-Intensive Computing in Radiative Transfer Modelling	D. Efremenko
12:10 – 12:30	Interoperability of Multiscale Visual Representations for Satellite Image Big Data	F. Merciol	Skies & Universes: Generating thousands of virtual skies for large cosmology surveys	F. Prada
12:30 – 14:00	Lunch Break			
14:00 – 15:40	Time Series and Change Detection (Parallel) Chamber Hall	Chair: C. Vaduva	Services and Apps (Parallel) External Hall	M. Datcu
14:00 – 14:20	ImageQuerying - image content extraction & querying across time and space	D. Tiede	The Euclid Archive System: a data-centric approach to big data	O.R. Williams
14:20 – 14:40	A Pilot for Big Data Exploitation in the Space and Security Domain	S. Albani	Challenges and Achievements in Supporting Research and Service Development for Big Data	J.M. Delgado Blasco

14:40 – 15:00	Scalable geospatial services for the production of time series and value-added maps in agriculture and water quality monitoring	A. Karmas	Prediction of system premature ageing based on functional decomposition of time series repetitive motifs and non-linear modeling	L. Boussof
15:00 – 15:20	RHETICUS: Fusion of Earth Observation and INSPIRE Data for the Environmental Monitoring	D. Illuzzi	SKYQUERY: a Parallel Database Platform for On-Demand Cross-Matching	L. Dobos
15:20 – 15:40	DAMATS: Prototype System for Classification in Satellite Image Time Series	C. Cucu-Dumitrescu	Earth Observation Image Librarian - EOLib: the Data Mining Component of TerraSAR-X Payload Ground Segment	M. Datcu
15:40 – 16:10	Coffee Break			
16:10 – 17:30	Wrap-up Panel			
Chair: J. Amador Monteverde P. Soille, P.G. Marchetti, S. Albani, S. Baillarin, H. Laur, D. Quintart, M. Datcu, F. Serban				

POSTER SESSION

TITLE	Author
Architectures, Platforms, and Cloud Solutions	
SENSYF Experience on Integration of EO Services in a Generic Cloud-Based EO Exploitation Platform	Antonio Gutierrez, Nuno Catarino
Automated Service Builder for Semantic Service Oriented Architectures (ASB)	Bernard Valentin, Matthieu Melcot
A DataScope for Satellite data	Romulo Goncalves, Martin Kersten
The Nansen-Cloud: a Scientific Platform as a Service for the Nansen Group	Morten Wergeland Hansen, Anton Korosov, Aleksander Vines, Tor Olausen and Torill Hamre
The Italian Data Processing Centre for the GAIA Mission	Rosario Messineo, Deborah Busonero, Angelo Fabio Mulone, Roberto Morbidelli, Lorenzo Bramante, Mario Gilberto Lattanzi, Filomena Solitro
Integrated Environmental Monitoring in Mountains within the Sentinel Alpine Observatory at EURAC Research	Roberto Monsorno, Marcello Petitta, Armin Costa, Alexander Jacob, Bartolomeo Ventura, Claudia Notarnicola, Marc Zebisch
Towards a Flexible Infrastructure for Big Data	Gonzalez Carlos, Cabrera Alberto