



estec european space research and technology centre

Fully Automated Aqua Processing Service (FAAPS)

Rome, April 19th, 2012







People matter, results count.

Table of Contents

Capgemini at a glance

- Fully Automated Aqua Processing Service (FAAPS)
- Experiences and with IAP and FAAPS



As global Technology and Consultancy Company we support our client's business around the world

- Largest consultancy of European origins. The brand stands for strategy and transformation consulting as well as the innovative development of process and software solutions and the operation of aligned IT solutions, infrastructures and business processes.
- **120.000 employees in 40 countries** support our clients around the world.
- As a top-5 player, we have the processes and structures necessary to support our clients locally and according to their domain specific requirements.



- We have a **global network of experts in the different sectors.** In particular our our Aerospace & defense unit with its scientific office is an expert pool for Space related projects.
- Being consultants, our experts and best practices focus on the business needs of our clients.
 We support on all levels from Top Management to the field from Business to IT.





With our space competence center we can support the full value chain for space related applications





Table of Contents

- Capgemini at a glance
- Fully Automated Aqua Processing Service (FAAPS)
- Experiences with IAP and FAAPS



Background and user requirements for flood management

Impact of floods	 Between 1998 and 2011 over 100 major floods in Europe More than 700 deaths and displacement of about 500.000 people in Europe At least 25 billion € of insured losses in Europe Further catastrophic floods in 2010 and 2011 outside Europe (Pakistan, Australia)
Users of a Flood Management systems	 Individual citizens Civil Protection Agencies Disaster Management Centers Emergency Response Units, rescue teams Public organizations for flood risk management Insurance / Reinsurance companies
Requirements	 Comprehensive flood situation overview with high resolution for professionals and citizens Localized NRT information provided to support and rescue teams in the field. Support definition / assessment of flood risk zones through historical flood maps
There's a growing demand	for fully automated NRT flood management services that is not covered by existing services



Our team closely works together with end users from different national and international organizations

Das Land	Office of the Styrian Government, Department for Protective Hydraulic Engineering	Capgemini Austria
🚓 Das Land	and Soil Water Management Office of the Styrian Government, Department of Crisis and Disaster management of	 Contract owner Project management Software development, architecture and design
Steiermark	Province Styria Federal government of Lower Austria	Capgemini Aerospace & Defense
	Department for fire department and civil protection	 Interface between IPF/TU Vienna and the industrialization process Support in architecture and design of the solution
lebensministerium.at	The Ministry of Agriculture and Forestry, Environment and Water Management	TU Vienna / IPF
BM.1 #	Austrian Federal Minstry of Interior	 Development of the scientific algorithm for the NRT hood monitoring service Scientific support
giz Peutsche Gesellschaft für Internationale Zusammenarbeit (Gi2) GmbH	Deutsche Gesellschaft für Internationale Zusammenarbeit	GeoVille Analysis of the business case for operational service.
CIPMS	Commissions internationales pour la Protection de la Moselle et de la Sarre	Responsibility for development of GUI components. Centre de Recherche
emergency.lu	Emergency.lu	Gabriel Lippmann Gabriel Lippman Enhancement of scientific algorithm by use of topgraphic and land use data



FAAPS will provide innovative services for Flood Management to address end user requirements





8

A Cloud based fully automated processing chain from satellite to the end user





End users will access flood maps by Smart Phone, Tablet PC or via the FAAPS gateway getting the data in their GIS Systems and Disaster Management Software





Having a look on our project's master planning we can see that we are now entering the Pre-Operational phase





Different activities with high end user involvement will verify that requirements are met and the system is ready to set it operational

Demonstration Aspects	FAAPS features used	Demonstratíon Scenarios	Involved End users			
 Indoor demonstration Outdoor demonstration Verification of how FAAPS can be used for documentation of flood events Use of reference data from DLR, orthophotos and flood extent delineation from in-field measurements 	 FAAPS Desktop FAAPS Mobile FAAPS Professional Gateway 	 March, Dürnkrut, Austria Oder, Schwedt, Germany Oder, Frankfurt, Germany 	Ministry of Agriculture and Forestry - Environment and Water Management Ministry of Interior - Department II/4/a Disaster Management			
 Indoor demonstration Evaluate support in flood monitoring and as an input for early warning systems. 	 FAAPS Desktop FAAPS Mobile FAAPS Professional Gateway 	• Sambesi, Mozambique	German Agency for International Cooperation			
 Indoor demonstration Use of orthophotos, aerial images and flood line delineations based on orthophotos and terrestrial measurements Evaluation of better support in managing rescue teams 	 FAAPS Desktop FAAPS Mobile FAAPS Professional Gateway 	 March, Dürnkrut, Austria Schwarze Elster, Wittenberg, Germany 	Office of the Government of Lower Austria - Department of Fire, Disaster and Civil protection Tulln, Lower Austria			
 Simulation of disaster event with governmental bodies Indoor demonstration Evaluation of support during flood event Evaluation of support to comply with the EU's Flood Directive 	 FAAPS Desktop FAAPS Professional Gateway 	• Mur, Bad Radkersburg , Austria	Office of the Styrian Government - Department for Protective Hydraulic Engineering and Soil Water Management Office of the Styrian Government - Department of Crisis and Disaster management of Province Styria			



Disaster Management Exercise in Bad Radkersburg (AUT) / Gornja Radgona (SLO)

Scenario

- A flooding situation is assumed in the dimension of a HQ30 or HQ100 for river Mur (border river between Austria and Slovenia)
- Latest event at this location: between 22 25.06.2009 Mur reached HQ5
- Potential inundation areas are known from run-off studies
- Aim: check if all relevant actors are organised well and if material/machines (e.g. diggers, sandbags) are ready for such a flood event
- In terms of this exercise FAAPS will be tested in terms of usability and integration with GIS systems



Involved Authorities

- Employees of the Department for Crisis and Disaster Management and the Department for Protective Hydraulic Engineering and Soil Water Management
- Commanding officers of the Styrian military commando
- Representative of the executive authority
- Representatives of the fire brigade
- Accessible by phone: employees of all relevant departments of the Styrian Government and representatives from business and research departments
- District council (Bezirkshauptmannschaft)
- District authority (Bezirkshauptmann)
- Mayor of Bad Radkersburg + Mayor of Gornja Radgona
- Representatives of the local fire brigade and executive authority
- Comparable participation is planned from Slovenian authorities



Table of Contents

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Two years of experience with IAP and Austrian Space community – we consider it a success story



We consider IAP as important driver for European Industry and in particular the Austrian Space Community



Contact us

http://iap.esa.int/projects/security/faaps



FAAPS (Fully Automatic Aqua Processing Service) proposes to support emergency management professionals with the provision of flood extent maps even in rain conditions and over large areas. This will be achieved thanks to the automatic processing of Earth Observation data. The flood extent maps will be delivered to the emergency professionals wherever they are located (in their offices or in the field). Upon accessing the flood extent information while in the field, the rescue

teams will also be indicated their own location with respect to flooded areas. This Location Based Service (LBS), making use of satellite positioning, will increase situational awareness and support rescue operations.

Closes: 30 January, 2013 • Open Competition: Study on Sustainability, Liability, and Business Aspects - eHealth for Sub-Saharan Africa Programme (eHSA)

Closes: 15 September, 2014

 Operator Opportunity: Joint SES
 Broadband/ESA
 Applications Initiative



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About Capgemini

With more than 120,000 people in 40 countries, Capgemini is one of the world's foremost providers of consulting, technology and outsourcing services. The Group reported 2011 global revenues of EUR 9.7 billion.

Together with its clients, Capgemini creates and delivers business and technology solutions that fit their needs and drive the results they want. A deeply multicultural organization, Capgemini has developed its own way of working, the Collaborative Business Experience[™], and draws on Rightshore[®], its worldwide delivery model.

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