



A message from the editor...

By Jo Van Brusselen, EFI, Finland

Welcome to the fourth issue of the newsletter of the GMES Service Element for Forest Monitoring. Upon request of our users, we keep the newsletter short, on two pages only. We start with an article of general interest to hopefully all GSE FM users and then we continue with short articles by service end-users. In each issue we cover feedback on services from a unique service theme. This issue puts the spotlight on services in the theme "Support to Environmental Monitoring".

The content of these newsletters is based mainly on contributions by end-users of GSE FM products and services. "By the users-For the users" is a nice principle in a community that boosts user-driven service development. Therefore you are welcome to contact the editor with your contribution to the GSE FM forum.

A message from the end-user training review...

By Gernot Ramminger, FELIS, Germany

Intensive end-user training has been an essential part of the GSE Forest Monitoring services deliveries from the start. Training guides end-users in the change from traditional monitoring methods towards the use of improved but increasingly complex monitoring instruments. The training activities are also important for a good customer interaction and to establish a basis for achieving a high awareness of existing EO-based services. Training enables the end-user to exploit available products and services to their full capacity. Discussions concerning the results, costs of these services, and potential improvements or additional products, also play an important role within the training sessions.

Training is catered to suit different needs of different types of users, from policy-makers to management and technical staff of existing and new users. The general objectives of the training are captured and updated annually in the training plan. Individual training sessions are planned and carried out for their users by the service providers themselves. In some cases, cooperating universities are also involved in the training. Training typically comprises a lecture with presentations, discussion and training material but can also be complemented with field trips, practical software training and E-Learning modules.

Since the start in 2003, GSE FM service providers organised more than 40 training sessions. Based on the training reviews, which are taken at the end of every training session, one can say that training met the expectations of the users and they were very confident with the provided training material. The impact of the training was generally considered positively.

Both decision-makers and users with a more technical background considered the training sessions to be very valuable. During the training it was possible to discuss both the technical aspects of the products and their meaning in a political framework. The training sessions could improve the understanding of the supplied products and how the products can be integrated into methodology and reporting routines.

Users do appreciate the benefits of personalised training and many would value also continued activities of this nature. However, requirements in terms of future training needs depend much on individual users' previous knowledge on remote sensing in general and the technical aspects of the products and services.

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Improved Modelling Accuracy of Dry Deposition Fluxes

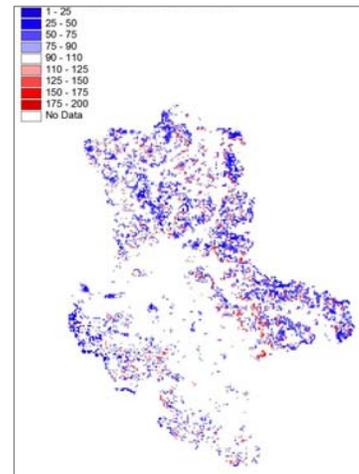
By Frank Fell, Informus and Birgit Mohaupt-Jahr, UBA, Germany

The German Federal Environment Agency (UBA-G) receives information products through the GSE FM service “Support to Environmental Monitoring” since 2005. The service provides a forest type map in high spatial resolution as well as environmental indicators in form of 250x250 m² grid maps, both derived from optical EO data. By the end of GSE FM, UBA-G will have received information products for the whole area of the former GDR and the Federal state of Schleswig Holstein, totalling up to approximately 120 000 km².

The delivered products are intended to be used for reporting obligations of UBA-G to the Convention on Long-Range Transboundary Air Pollution (CLRTAP). More specifically, the products serve as input to modelling dry deposition fluxes of atmospheric substances into forest ecosystems to estimate the critical loads exceedances.

In order to estimate the benefits of the GSE-FM products, a sensitivity analysis for acidifying substance input was funded through GSE FM and subcontracted to the Energy Research Centre of the Netherlands (ECN). The results show that the use of the high resolution GSE FM product allows for a more detailed calculation of the dry deposition rates of acidifying components over Germany. The GSE FM derived tree height estimates appear more realistic at the 1 by 1 km pixel level, with lower tree heights at forest edges, higher tree coverage in non-forested pixels and areas with lower (clearings?) or higher tree heights within the larger forested regions.

The average dry deposition loads over the study area go down by about 7% as compared to the currently applied method. The reductions are largest for coniferous areas, where the average dry deposition goes down by 16%. Reductions can be much larger for individual 1 by 1 km pixels (up to a factor of two or more), especially on the edges of forested regions.



Relative amounts of modelled dry deposition fluxes when using the GSE-FM data product as compared to the current operationally applied data input for the German Federal State of Sachsen-Anhalt (~20,500 km²)

Forest related data for Austrian reporting obligations

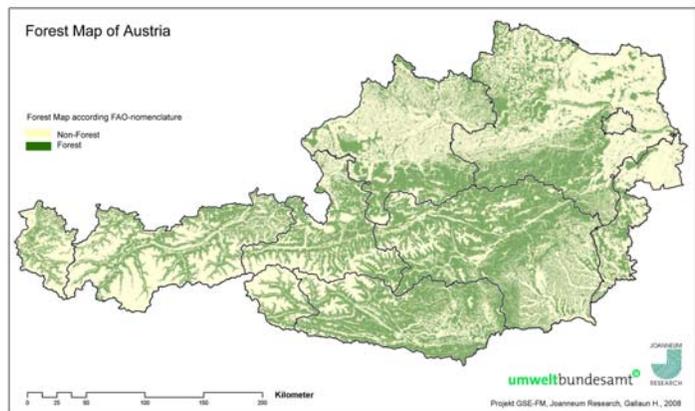
By Stefanie Linser, Umweltbundesamt, Austria

Austria - like other European countries - has several forest related international reporting obligations which relate to the internationally agreed FAO definition of “forest area”. The Austrian in situ measurements of the forest area relate, however, to a diverging national definition. Also data for some forest related indicators like landscape pattern could not be collected by in situ measurements.

Therefore, the Institute of Digital Image Processing of Joanneum Research provided within GSE FM a digital forest-non forest map with an accuracy of 95,8 %. Based on that additional information on various land use categories were derived. Further on, several methods to show the landscape pattern were elaborated by the service provider in close collaboration with the Umweltbundesamt.

Results include maps on forest-non forest area, forest area percentage, number of forest patches per km², number of forest-non forest patches per km², fragmentation of forest and length of forest border per ha forest. To reduce the costs for repeated mapping of the forest area map the underlying methods comprise a high degree of automation.

At the end of this stage in April 2009 Austria will be able to fulfil those forest related reporting obligations towards UNECE/FAO, MCPFE or Alpine Convention which so far could not be accomplished.



Forest – non forest map of Austria based on satellite data and on digital ortho-photos from about 2003