

# Geo-Information Services for Water Quality

## Monitoring Nutrient and Plant Protection Agents Entries to the Water Cycle

The current discussion on climate change highlights one fact: in the near future, water resources will become the most important good for mankind.

Water monitoring networks show that more than 20% of EU groundwaters today are charged with excessive nitrate concentrations, at least 30-40% of EU rivers and lakes currently show eutrophication symptoms and/or bring high nitrogen fluxes to coastal waters and seas. Political bodies have recognised the need to act and establish the legal framework to achieve sustainable high-quality water resources. Now, efficient and cost-effective tools are needed: to adequately characterise water bodies and – in the next step – to localise, assess and define measures and actions that help achieve and/or conserve a good status of these water bodies.

Infoterra's Water Quality Services focus on the identification and management of nutrient and plant protection agent inputs into the hydrological cycle. Such inputs may originate from agricultural (fertilisation/chemical plant protection), urban (direct surface runoff) and other point sources (industry/sewage treatment plants).

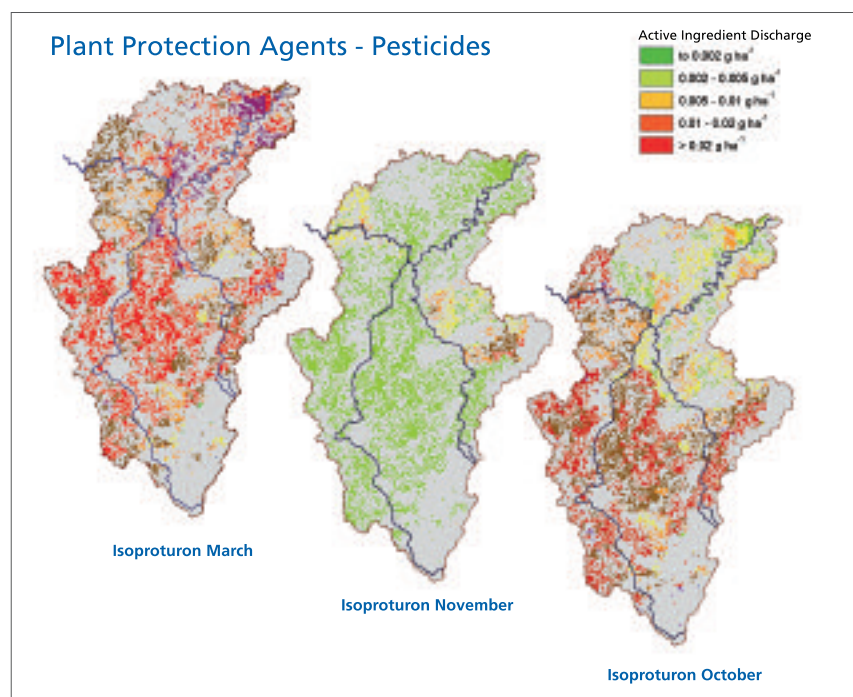
Infoterra's Land Cover Mapping products are based on high and/or medium-resolution satellite imagery, fine-tuned to deliver input of key parameters to both established or novel water quality models. Depending on the individual client's application requirements, land cover maps with a resolution of up to 1:25,000 and up to 30 thematic classes and regular updates are possible.

As a next step, Infoterra and partners operate Water Quality Models, integrated into easy-to-use software with flexible user interfaces, that focus on nutrients and plant protection agents (e.g. pesticides). These models locate and assess the impact of diffuse pollution sources (e.g. as related to local agricultural practice and hydrological conditions) on the water quality.



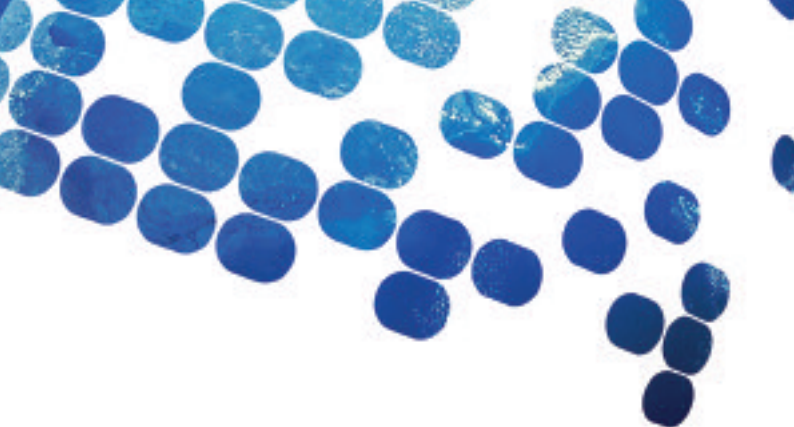
Clean water bodies are valuable resources to mankind

In combination with user's common analysis and management tools, Infoterra's Water Quality Services efficiently support water management authorities on all administrative levels to define effective measures which directly contribute to the "good status" of water bodies – explicitly required e.g. by the European Water Framework Directive by 2015.



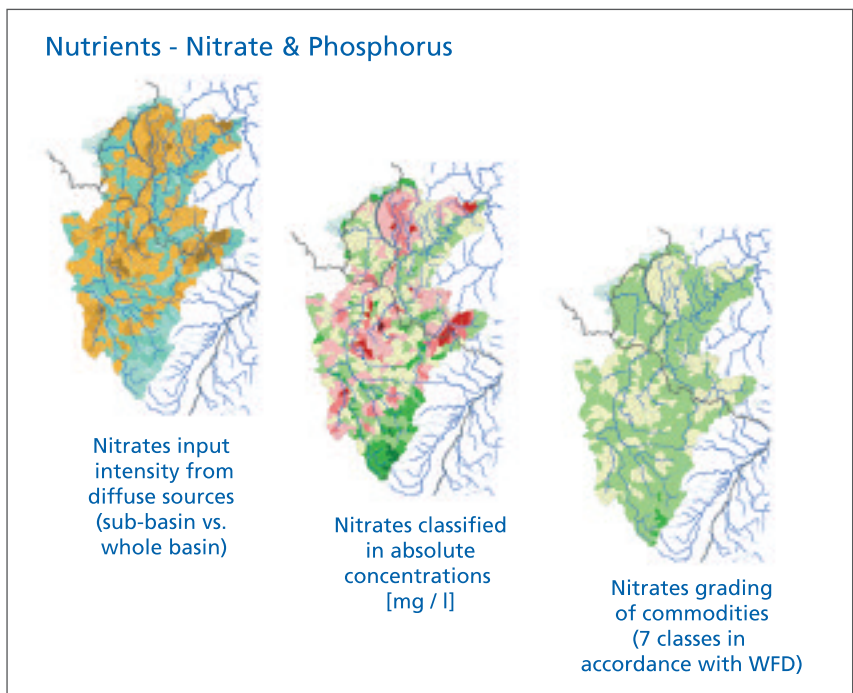
Modelling: entry of pesticide „Isoproturon“ into ground- and surface waters of a cross-border river basin catchment at different points in time

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The services are designed for ecological/ environmental units, performed on a spatial and not merely an administrative basis reaching across national and international borders. This allows for the management of river basins as a unit rather than a conglomerate of administrative units.

Infoterra's Water Quality Services have been developed in close cooperation with user organisations across Europe – they are specifically designed to fit user-defined requirements and have been validated and approved. This user-driven development approach ensures that customers are provided with reliable and efficient geo-information services. These can be acquired as standardised products or may of course be adapted to the specific requirements of individual applications.



Diverse possibilities of assessing intensity and impact of nitrate and phosphorus entry into a cross-border river basin's water bodies  
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| Technical Specifications:  |  |
|----------------------------|--|
| Thematic layers            | Nitrogen, phosphorus and plant protection substances           |
| Geometric resolution/scale | Water bodies < 10 km <sup>2</sup> up to >1,000 km <sup>2</sup> |
| Maximum working scale      | 1:10,000   |
| Update frequency           | On user request  |
| Format of delivery         | On user request, ESRI shapes, doc, tables                      |
| Type of data delivered     | Statistics, maps, reports                                      |

**Infoterra GmbH**  
 Headquarters  
 Mailing Address:  
 88039 Friedrichshafen  
 Germany  
 T. +49 (0)7545 8 4344  
 F. +49 (0)7545 8 1337  
 E. info@infoterra-global.com  
 www.infoterra.de

Visiting Address:  
 Claude-Dornier-Strasse  
 88090 Immenstaad  
 Germany

Production Center  
 WilhelmGalerie  
 Platz der Einheit 14  
 14467 Potsdam  
 Germany  
 T. +49 (0)331 2374 8400  
 F. +49 (0)331 2374 8427