SIXTH FRAMEWORK PROGRAMME

FOOTPRINT

Introducing the SUGAR index

Where did that water go?

www.eu-footprint.org

Have we got a SW or GW problem?

- Question posed: is this particular area ultimately contributing to surface water or groundwater recharge?
- Typical approach for GW: intensive collection of information on soil texture, geology, depth to groundwater, etc. & overlay of GIS layers
  - USEPA's DRASTIC
  - Data intensive for large-scale applications and unexplored areas
  - Main limitations: subjectivity in the selection of the different layers to integrate, subjectivity in the weights attributed to each layer
  - Cannot be deployed for the whole of the EU

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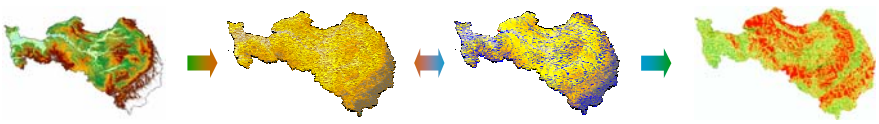
The FOOTPRINT SUGAR index

- SUGAR = SUrface water / GroundwAter contRibution index
- Tells whether a particular piece of land contributes to groundwater or surface water
- Based on observed data only!
- Combines two approaches for hydrological assessments

SUGAR

- IDPR
  - Based only on real, readily-available, data
  - Altitudes (DTM) and Surface Water network
  - Computes a hypothetical SW network and compares it to the observed one
  - The difference between the 2 networks provides an indication of water pathways



- SPR
  - Standard Percentage Runoff used in catchment hydrology (responsiveness)
  - SPR attached to each FOOTPRINT soil type

The FOOTPRINT SUGAR maps

> SUGAR map computed for the whole of the EU
  - 1:1M DCW for surface network
  - SRTM 90 x 90 m for DTM
  - FOOTPRINT agro-environmental scenarios

> Internal workshop hold to validate SUGAR in specific countries, but clear need for additional validation

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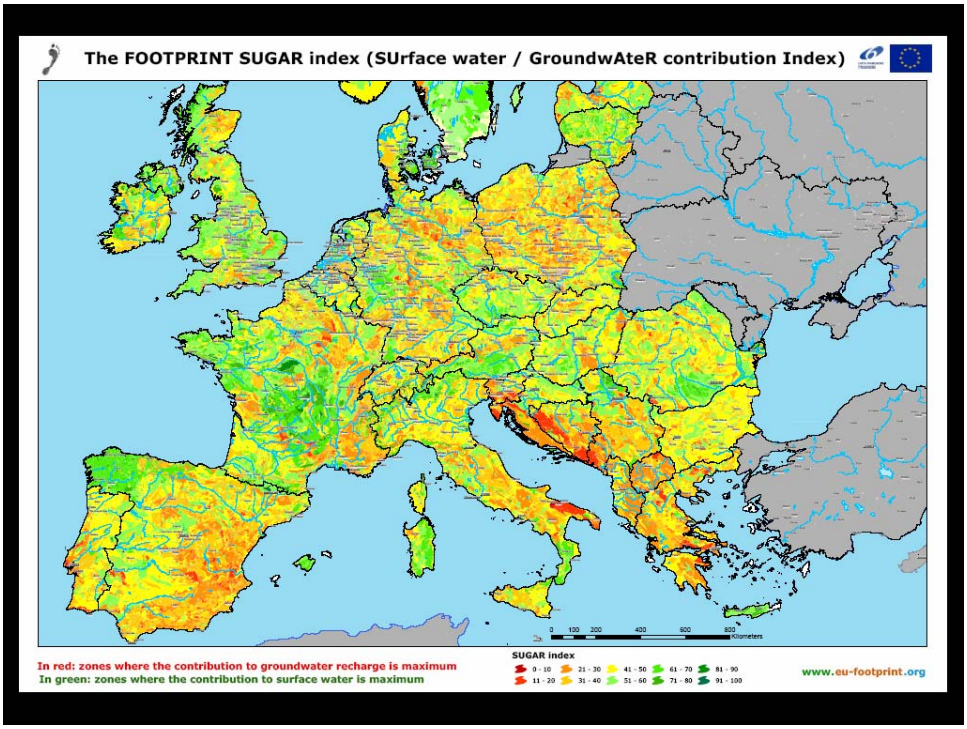

How can I use SUGAR?

- Not specific to pesticides!
- Overlay with predicted pesticide loss at 1-m depth
- Identify areas of special interest (SW, GW)
- Optimise/rationalise monitoring programs and stewardship campaigns
- Assess groundwater recharge
- Assess groundwater vulnerability (e.g. overlay with depth to aquifer, usage, etc)
- ....

How is it going to be used in FOOTPRINT?

- Used in FOOT-CRS and -NES for GW assessments
- Outputs:
  - Map of the area showing the leaching risks based on predictions at 1-m depth
  - Map of SUGAR
- The user integrates the information himself/herself

Making SUGAR available

- Availability through the FOOTPRINT web site:
  - Geographical coverage
  - Formats
    - Jpeg (images)
    - ESRI ArcGIS lyr
    - GoogleEarth and Googlemaps

- Expected release: by the end of 2007
- SUGAR can be computed at a much finer scale (in particular for catchment and nationwide applications)

Take-home messages

- The FOOTPRINT team has developed an innovative index to estimate the relative contribution of land to SW and GW
- Maps for all EU member states have been produced
- The EU and national maps will be distributed for free through the project web site

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