



5. CONCLUSIONS

**FROGS (French Refinement Of Groundwater Scenarios)
UIPP Training**

Paris, 16 November 2011

UIPP Environmental Methodology Working Group



Tier 2 national scenarios when Tier 1 fails

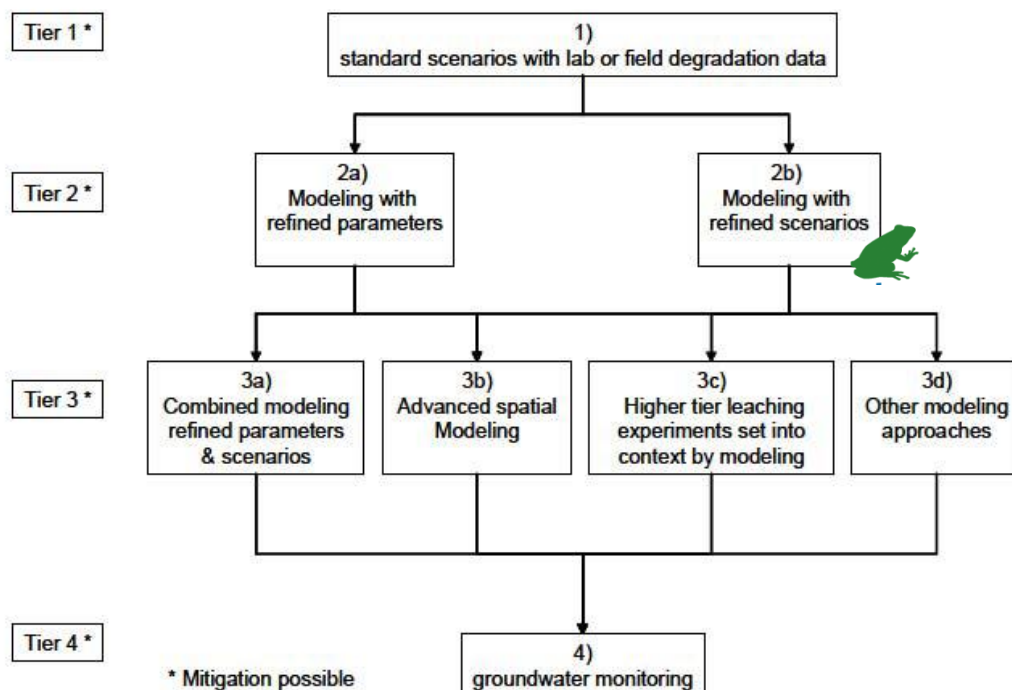
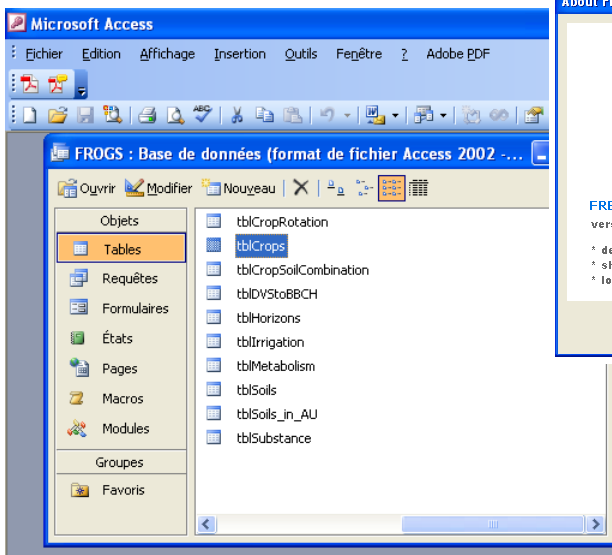
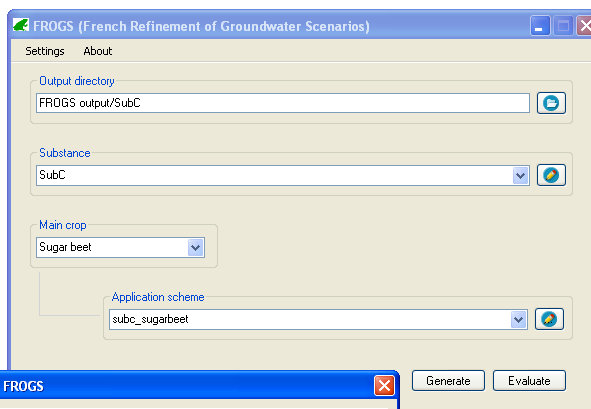
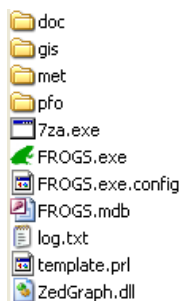


Figure 4-2. Proposed generic tiered assessment scheme for ground water.

- Realistic environmental and agronomic conditions in terms of climate, soils and crop management derived from readily available data
- Compliant with FOCUS principles
- Enable implementation of mitigation options
- Door open for further refinements (Tier 3: refined modeling and Tier 4: monitoring)

Straightforward and easy-to-use tools

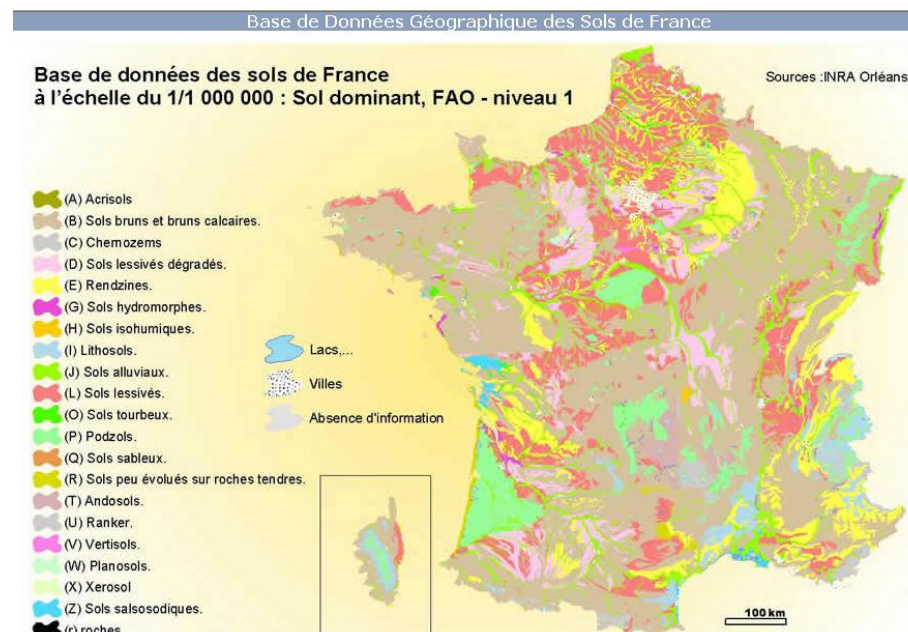


- **Transparent**
 - All input parameters stored in Access® database
- **Flexible**
 - All PEARL options available (pH-dependance, long-term sorption)
 - Fully flexible metabolization scheme
 - Possibility to add scenarios (experts only)
 - Applications based on BBCH



Soil data

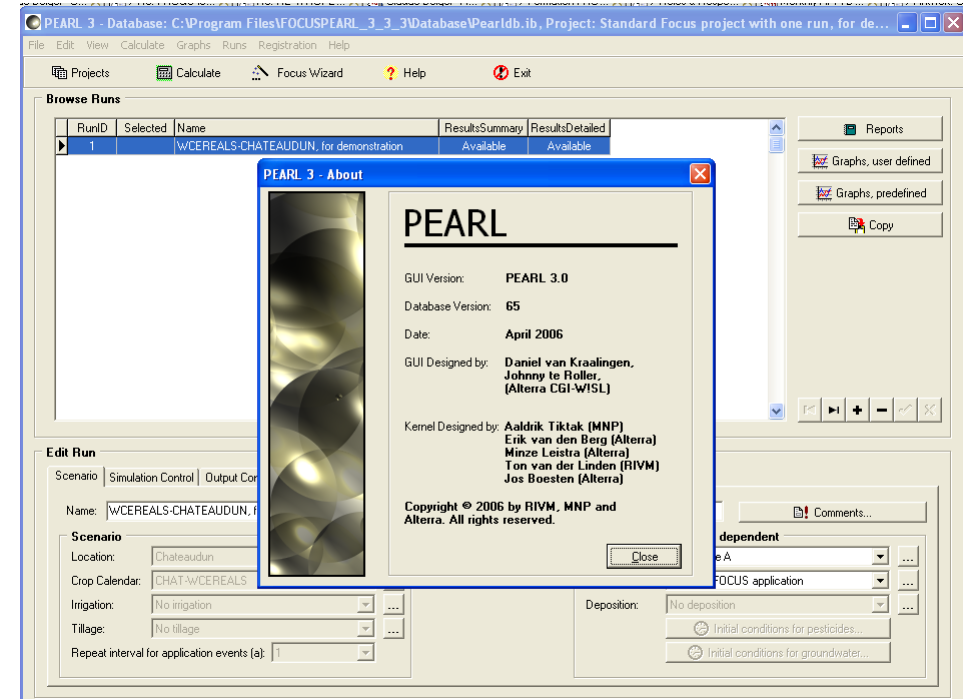
- **Constraints linked to data availability and quality**
 - Insufficient spatial resolution
 - Localization of typical soils within the AUs not possible
 - Selection of soil profiles from limited database
 - Correction of OC content
- **Relation to crops**
 - Crops may be preferentially grown on certain soil types in some AUs





Limitations of the PEARL model, v3.0

- **Constraints linked to SWASH hydrological model**
 - Some (few) scenarios still crashing
 - Limited to 70 years (86 needed for 4-year rotations)
- **Crop calendar**
 - Shifting of some emergence / harvest dates
- **No macroporous flow yet**

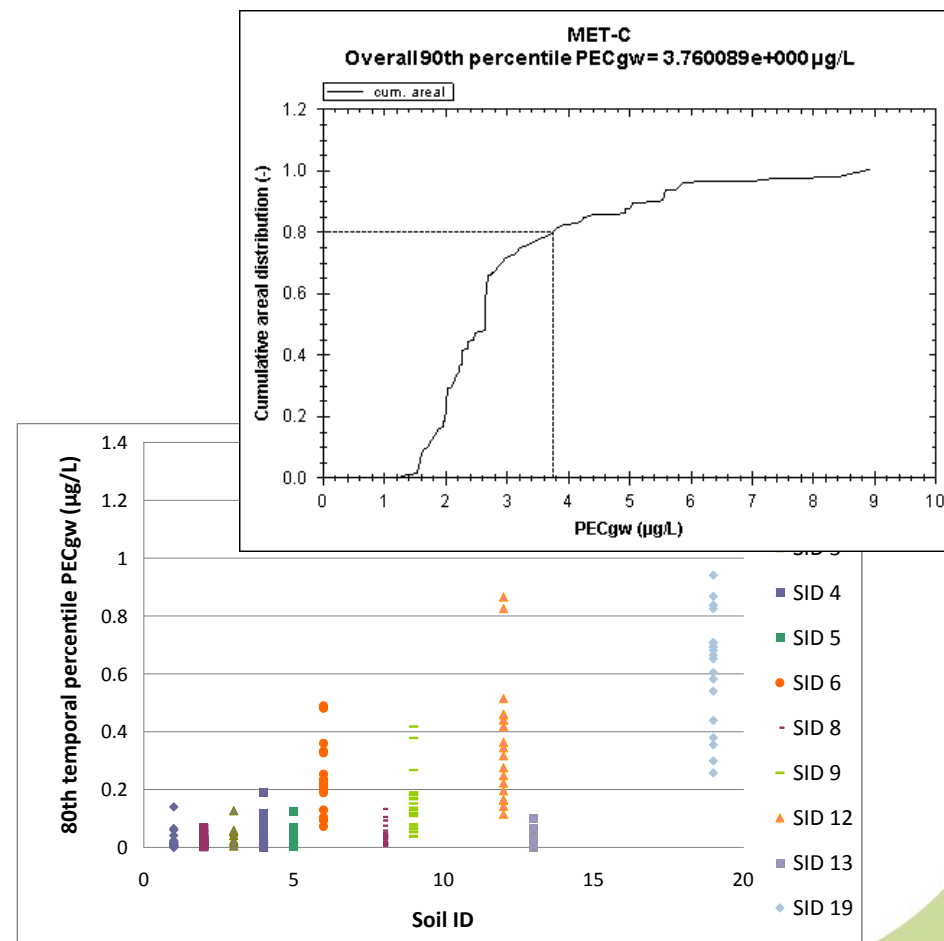




Limitations of the FROGS tools

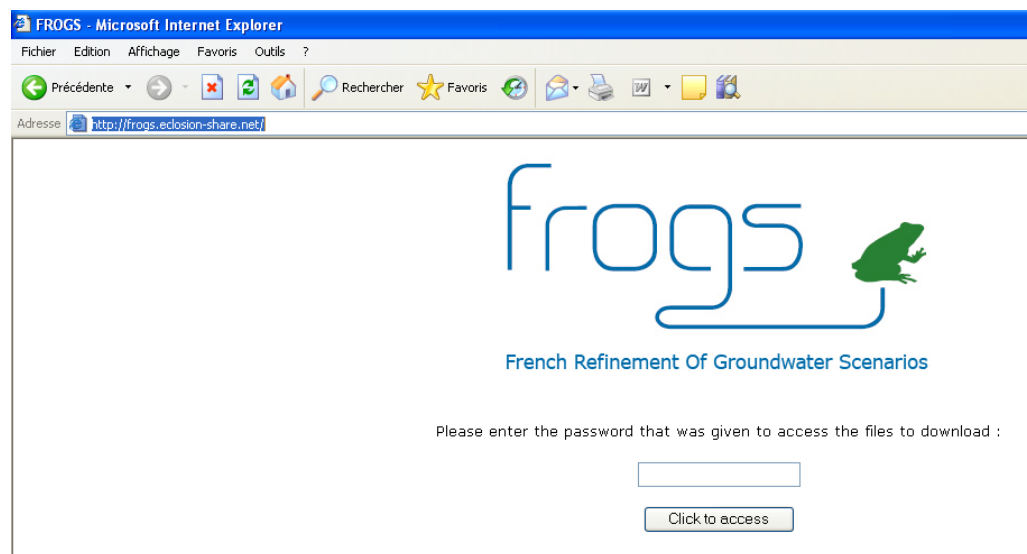
- **Require disk space and processing power**
 - Recommended to use on fast, high-performance computers (multi-core processors)

- **Limited post-processing in FROGS interface**
 - Export and use provided Excel® template or make your own





- Website hosted on UIPP server: <http://frogs.eclosion-share.net/>
- Accessible to the public, but sign-in required, password available on request (like JRC databases)
 - Download of FROGS tools and documentation
 - Training material
 - Updates and bug fixes





- **Extension to perennial crops**
 - Localization known
 - Great variety of soil conditions
- **Scenario improvements**
 - Improve soil parameterization
 - Scale, OC content, localization in AUs, relationship to crop
 - Improve crop parameterization
 - LAI, rooting depth
- **Include preferential flow as requested by ANSES**
 - Test of macroporous flow routine in next version of PEARL and check if applicable to French conditions



Thank you very much for your kind attention