A short report on the ESS-I Rencurel meeting

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8 simulators,

10 scientists ...

All crazy

Scope of the meeting

ESS-I Lund meeting early this year:

- Time to restart ESS studies
- Requirement for a brainstorming session

Objectives:

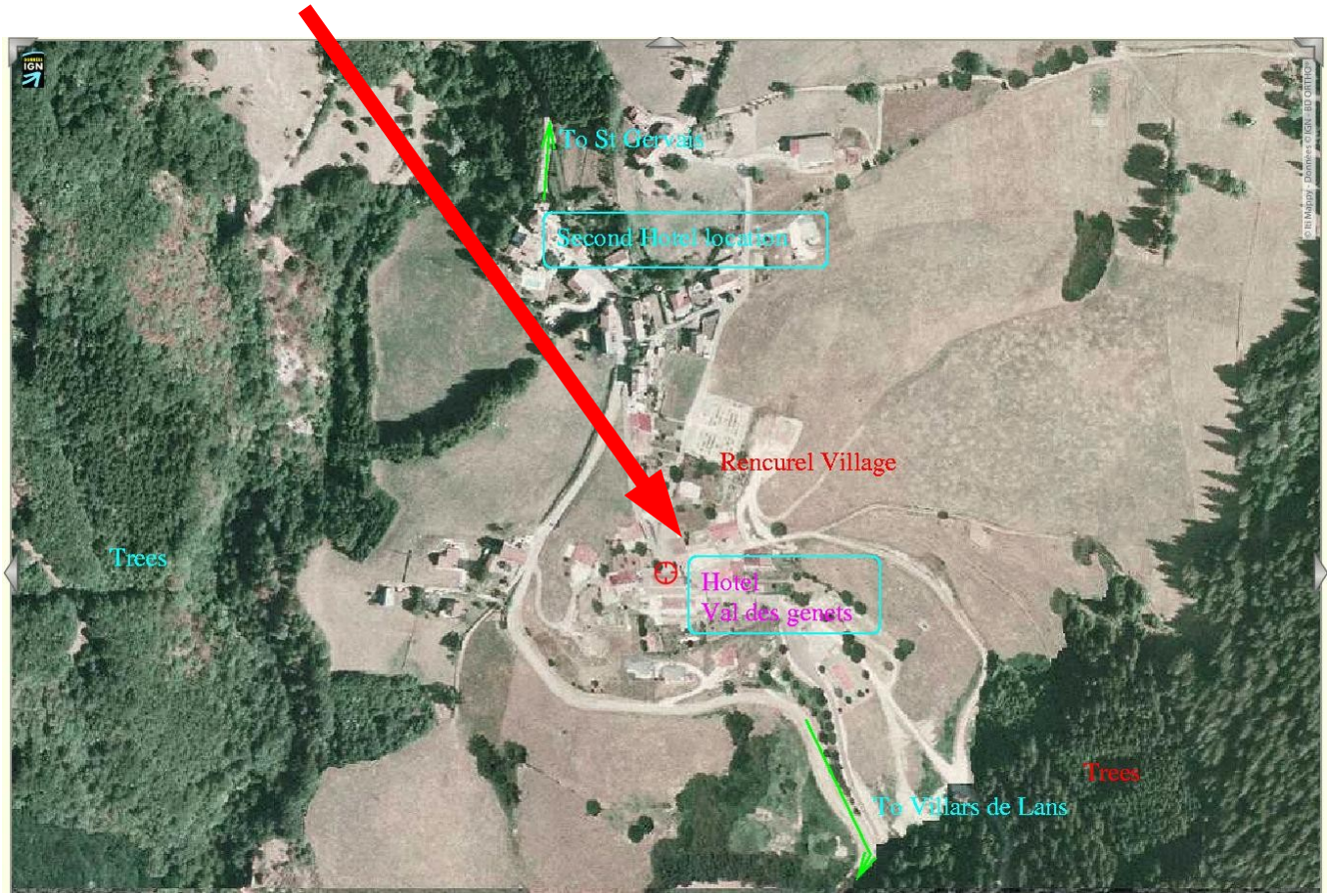
- "Simulations Unlimited Co."
- Bring scientists and simulators together
- Summarize previous studies
- Focus on Long Pulse ESS option
- Improve instrument designs
- Write a scientific paper in NIMA/JNR
- No political flavour

http://www.ill.fr/Computing/ESS-LP/

Participants

Organized by ILL in the Vercors mountains
(monastic life guaranteed)

10 scientists+8 simulators from:
ILL, ESS-I, Risoe, NPI, PSI, HMI FSJ, LANSCE, ISIS



Instruments to be studied

Sources: ESS Long Pulse model (McStas, Vitess, ...)

Guides

Spectrometers

Diffractometers

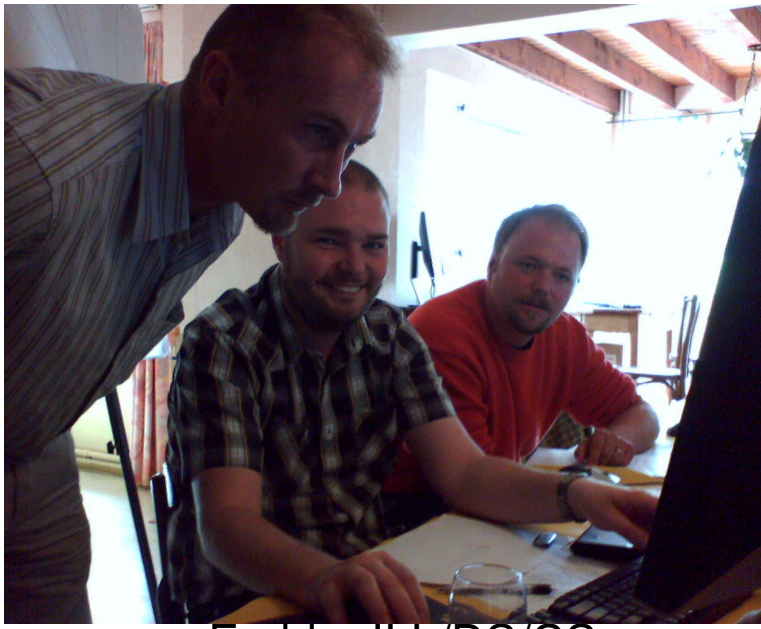
SANS/Reflectometers

Spin Echo machines

Hard work cafe

« Do not disturb »

The place

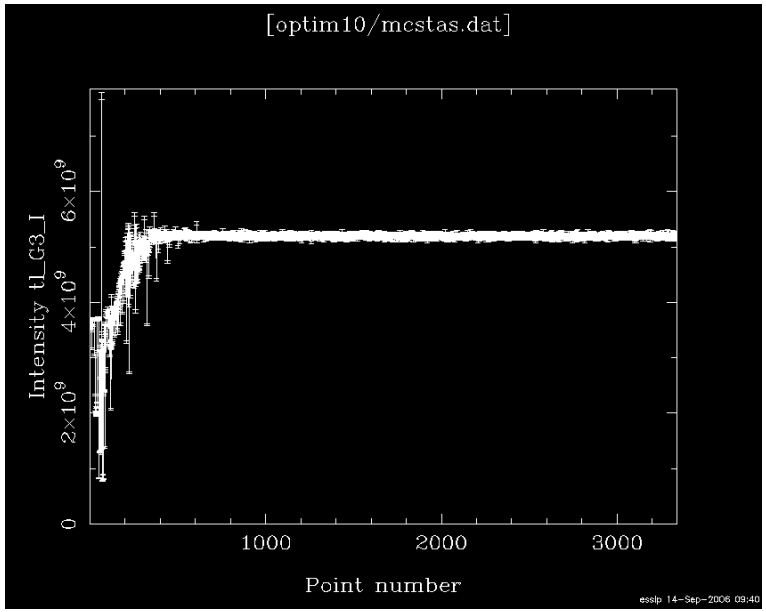


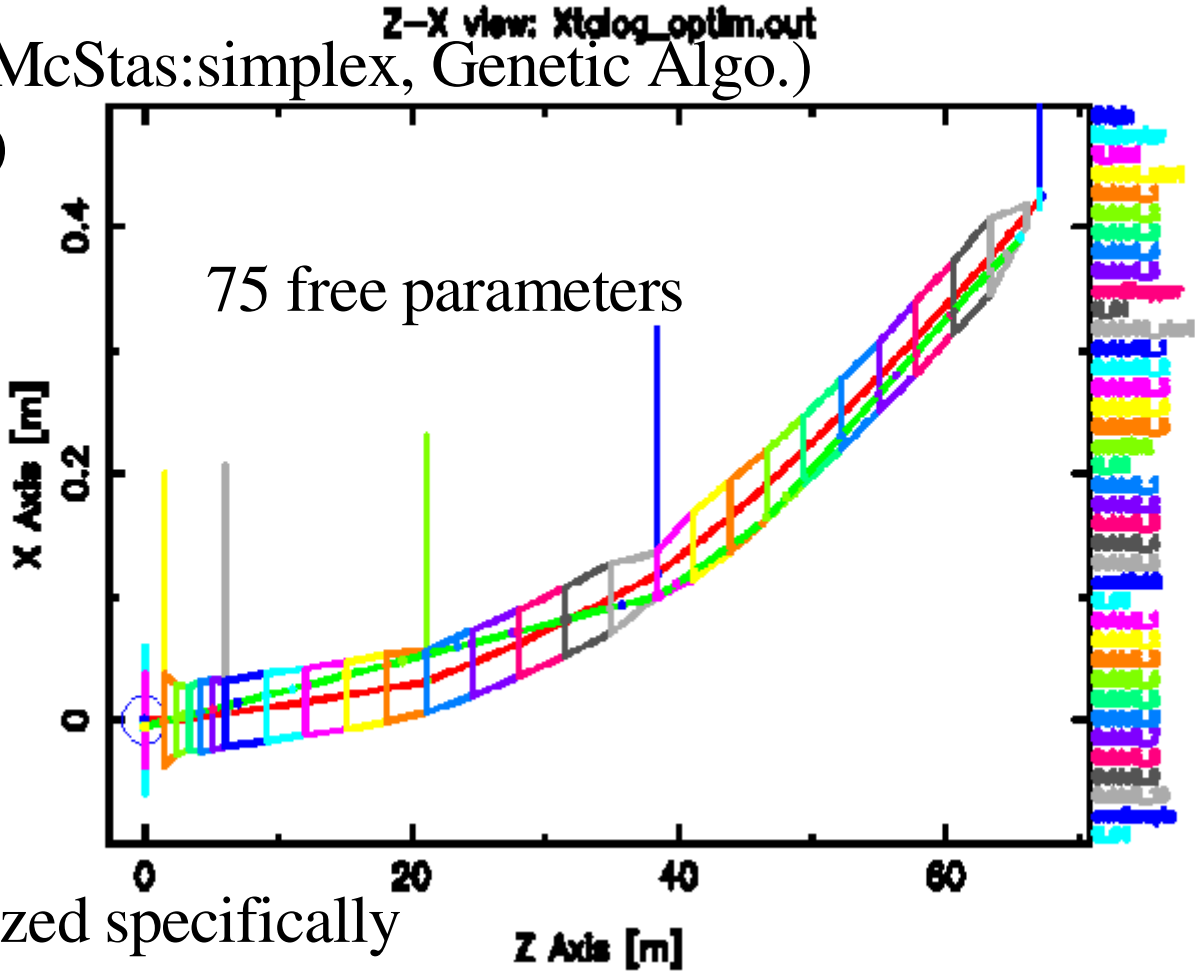
Nice, isn't it ?

Simulations performed and Results (1)

Sources: Current ESS LP parameters still valid

Guides: Optimization methods (McStas:simplex, Genetic Algo.)
substantially affect geometry)





Each guide will have to be optimized specifically

Length: 100-200 m except Spin-Echo, SX station
(Ken's law)

Simulations performed and Results (2)

Spectrometers (TOF inelastic):

Long Flight Path improve intrinsic $d\lambda/\lambda$ -> 200 m
Multipexing (rep. rate) can be achieved (e.g 11 sub-pulses)
Reduce number of choppers
Possibility to adapt flat-cone geometry for E=cte scans

Diffractometers and Spin-Echo:

Smaller distances to use broad-band scattering

SANS/Reflectometers:

Previous studies can be adapted to Long Pulse option

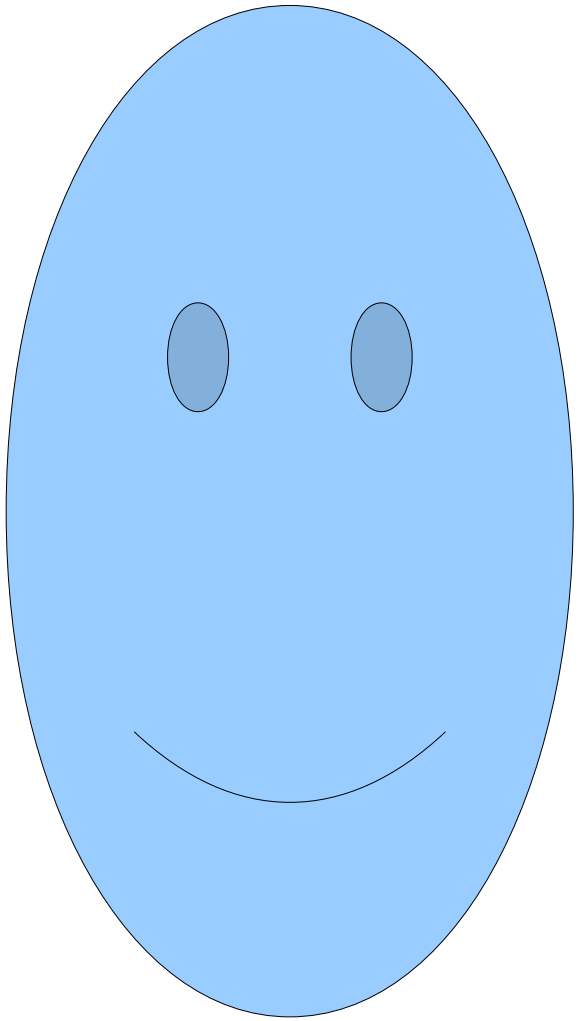
Results of the meeting

The efforts on the simulation side confirm the original ESS document.

- When comparing ESS-LP@5MW with SNS@1.4MW many instruments have to be upgraded from '*some lead*' to '*world lead*'.
- Smart layout of the guide system allows for a large number of instruments.
- Novel techniques (higher m-values for super-mirrors, smart guide design etc, will give additional gain by the time ESS-L is coming up.

will produce a scientific paper for the Euneutron community

Conclusion



very concentrated work

complete success

might be done yearly in the future