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Techsia is pleased to offer the following internship opportunities for the academic year 2008/2009. The general organization we foresee, for each internship, will be, depending on the candidates' expertise: 1- state-of-the-art analysis, 2- definition of the technical specifications, 3- follow-up and participation in the IT developments.

1) ACOUSTICS

Based on sonic advanced applications such as geophysics, geomechanics, reservoir characterization and well integrity, the intern will be in charge of:

- Putting together a bibliography referencing available software and tools in the industry for the implementation of all kinds of functions in Techlog (see below)
- **Implementation of basic acoustics tools in Techlog:** waveforms management, peak detection management, slowness determination (BHC, DDBHC, STC and multi-shot slowness time coherence), cement bond log, variable density logs, synthetic seismograms...
- **Implementation of advanced tools and algorithms:** fractures identification, sonic permeability and mobility (Stoneley...), anisotropy quantification, gas identification using compressional waveforms, dispersion analysis (Monopole, dipole and stoneley), borehole alteration algorithm, mechanical modelling & rock properties (Poisson's ratio etc.), sonic imaging, visualization of array-style resistivity/NMR/sonic imager type of data using 3D viewer technology

2) PRODUCTION LOGGING

- Integration of Production logging data algorithms:
 - Spinner interpretation and flow interpretation: Cross flows etc..
 - Multi-Phase determination and interpretation
 - RST (Reservoir saturation tool) integration
- Cased Hole Logging: Implementation of algorithms for cement and casing integrity: CBL or Ultra sonic data

3) WBI

WBI is Techlog Wellbore Imaging module. It includes workflows from Speed correction up to Automatic dip picking, going through all the harmonization and image analysis basic functions.

New and advanced developments can still be considered in terms of Image analysis like permeability quantification, faults and fractures evaluation. The trainee's tasks here would be to follow up on the developments, test and communicate with clients.

4) UNCERTAINTY MANAGEMENT

Propagation of uncertainties from log and core measurements to interpreted results; especially in consideration of:

- Models built from core data and implemented in log domain
- Propagation of uncertainty from log readings to mineralogical results curves from the Quanti.min inversion module

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5) MUD LOGGING

Integration of Mud Logging functionalities into a new Techlog module.

The capabilities, analysis of the drilling parameters and the data being acquired, will need to be studied and prioritized.

6) GEOMECHANICS

Based on some existing libraries, the functionalities of this new module like rock properties determination, especially *Gassmann Fluid Substitution* parameters, need to be discussed and determined: V_p/V_n , Poisson's ratios, Bulk Moduli etc...

7) GEOPHI EXTENSION

The trainee will need to follow up on possible new developments within the existing module Geophy collaborating with third parties (partners and/or clients), but also using published papers.

Our main area of interest would be AVO (Amplitude versus offset) capabilities implementation.

8) NMR

New developments within the existing NMR module in collaboration with third parties (partners and/or clients), but also using published papers:

- Tight gas
- Diffusion