

## **Meet the challenges in petroleum system analysis – our tools and experiences SubTitle**

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One of the missions of Beicip Inc. is to promote petroleum exploration and production technologies developed by IFP and Beicip-Franlab and provide support and consulting services to the industry in USA and Central America.

Beicip Inc. is pleased to present a technical talk on petroleum system analysis during the GMSH meeting to be held on May 4th, 2004. We will entertain our audience in several aspects that would be technically of interest to petroleum analysts and petroleum explorers. We will first discuss the necessity of carrying out 3D basin modeling in order to investigate the exploration risks (e.g., source maturation, charging time, fluid quality, seal integrity, subsurface pressure, etc.), with a real case. We will then briefly compare workflows that would be commonly utilized depending on factors such as data availability, desired resolution and allowed time. The audience will then have a glance of several 3D petroleum system studies in basins of various geological setting.

We will highlight some of the special features of our tools that are useful to handle several both theoretically and practically difficult tasks in petroleum system analysis, for example, the handling of thickness variations in the mobile strata or as a result of faulting, irregular grid definition to optimize spatial resolution and computing efficiency, simulation in non-rectangular a mesh, windowing technique for extracting a sub-block from a block that has been calibrated for higher resolution simulation without doing re-calibration. A summary of the performance of our 3D coupled multi-phase Darcy flow simulator will also be presented.

Finally, an overview will give on some other tools that we use in our consulting services, e.g., tools that are specially designed for tectonically complex area.