

## SPGNA 2021 Q1 webinar

Time: 10AM CST / 8:30PM IST

Date: March 26th Friday

### **Title: Quantitative use of 4D seismic on Atlantis field**

**Abstract:** In the Atlantis Field (Gulf of Mexico), 4D seismic has been used successfully in reservoir monitoring. We are now using the time lapse data for more than qualitative interpretation. Monitor seismic data was acquired in 2015 and 2019 (base seismic in 2005) and have been used quantitatively to update the reservoir model by a joint inversion of the 4D seismic and the production data. This process is called 4D assisted history matching. The result is not just one reservoir model but 1000s of models that capture the parameter space and show the uncertainties that are present in the reservoir model. We developed various modern tools with the help of Python scripting and an internal version of JupyterLab to quickly analyse these ensembles and understand the uncertainties in the reservoir model. By adding the 4D seismic element we capture the spatial distribution of the aquifer and injected water movement which results in a better history matched reservoir model. Those models are used for an improved prediction of future production, reduced uncertainty and ultimately better-informed decisions on reservoir management and placement of infill wells.

### **Speaker Bio:**

Dhananjay Kumar received an M.S (2000) in exploration geophysics from the IIT Kgp and a Ph.D. (2005) in geophysics from the University of Texas at Austin. Since 2012, he has been working as a geophysicist at bp in Houston. Earlier, he worked one year for Reliance in Mumbai and seven years for Chevron in San Ramon and Houston. His research interests include reservoir properties predictions from seismic, 4D seismic, shale gas and gas hydrates. He is a member of SEG, GSH, AGU and SPG North America Chapter.