

Play Fairway Analysis using GIS based Common Risk Segment Mapping

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Abstract

The International New Ventures team at EnCana has been refining their basin analysis methodology over several years based on Common Risk Segment (CRS) mapping of basins and play fairways. Chronostratigraphic diagrams of the basin are used to identify the key petroleum system elements and for each play summary GDE (gross depositional environment) maps are made of each petroleum system element. Typically these maps would include reservoir, seal and source facies; these maps are then used to create component risk maps for reservoir, seal and source presence. Additional component risk maps are constructed for reservoir quality, seal effectiveness and source rock maturity.

The maps are compiled in ArcGIS which facilitates the incorporation and synthesis of data from a disparate of data sources. Initially, areas of low play risk were identified by overlaying the component risk maps in ArcGIS. In the last year the methodology has been significantly improved by using the Play Fairway Analysis Tool extension for ArcGIS which allows the layers to be combined mathematically based on risk values and yields a composite map of play risk.

GIS is also used as a data portal through which a wide range of data resources can be accessed both on internal servers and from external vendors websites. This customized GIS tool is designed to be a one stop shop for all available data resources for the selected area to streamline the CRS mapping.

A couple of different study areas will be used to illustrate the CRS play fairway analysis workflow and the potential benefits of the GIS data portal.