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Tectonic Evolution and Paleogeography of Europe

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Multiple rifting and suturing events through Phanerozoic time amalgamated Europe as we know it today. Our detailed analysis of the crustal blocks of Europe during the Caledonian, Hercynian, and Alpine orogenies allowed us to understand the influence of these events on the hydrocarbon systems of Europe. To summarize this, we present a series of eleven paleogeographic maps from Carboniferous to Pliocene time. These maps were produced as part of a project to develop basin-wide models for regional play element distribution in the major hydrocarbon-producing basins of Europe.

Description of the tectonic evolution of Europe can be divided into four main phases related to motion between Baltica, North America/Greenland, and Gondwana. The first was the formation of Laurentia (Europe and North America/Greenland) during the Early Paleozoic Caledonian orogeny, followed by Carboniferous assembly of Pangea (Laurentia and Gondwana) in the Hercynian orogeny. The third phase, subsequent rifting and separation of these blocks, started in Permian time. The fourth and final phase, that continues today, is the Alpine orogeny which results from convergence between Africa and Europe.

Biographical Sketch

Pinar O. Yilmaz is a geologist with Exxon Exploration Company. Yilmaz holds a Ph.D. in structural geology and tectonics from the University of Texas at Austin. After graduation in 1981, she spent four years with Mobil Oil prior to joining Exxon in 1984. Following ten years with Exxon Production Research Company, she has recently accepted a position with Exxon Exploration Company. Yilmaz is a former Chair of the HGS International Explorationists and also has served as the technical chair. ■