

The HGS prefers that you make your reservations on-line through the HGS website at www.hgs.org. If you have no Internet access, you can e-mail reservations@hgs.org, or call the office at 713-463-9476. (include your name, e-mail address, meeting you are attending, phone number and membership ID#).

by José I. Guzmán (speaker), C&C Reservoirs Inc., Houston, Texas, Rod Sloan, C&C Reservoirs Ltd, Maidenhead, Berks., United Kingdom, Shengyu Wu, C&C Reservoirs Inc., Houston, Texas, and Shaoqing Sun, C&C Reservoirs Ltd, Maidenhead, Berks., United Kingdom

Sponsored by C&C Reservoirs

Worldwide Reality Check of Seals and Sealing Models

An empirical evaluation of seals in over 980 reservoirs located in 190 basins worldwide was used to test the validity of the most popular assumptions made when risking hydrocarbon retention. Modern deterministic seal studies have produced a substantial volume of useful information on sealing lithologies, but many have yet to be calibrated with the height of hydrocarbon columns and with the degree in which traps are filled to their maximum capacity. A comprehensive classification, based on the number, type, location and combination of sealing surfaces was developed to better understand the contribution of each sealing surface and to facilitate this calibration process. End-member seal categories are simple top seals, updip lateral fault seals, and lateral stratigraphic seals. Combination types may be top-dominated, fault-dominated, or stratigraphic-dominated. A separate class of miscellaneous or unconventional seals is also considered. Over half of the reservoirs studied are sealed by a combination of surfaces. Assumptions made when using common wisdom for seal risking, followed by

an empirical reality check from worldwide reservoir analogs will be discussed. ■

Biographical Sketch

JOSÉ I. GUZMÁN is a Senior Research

Geoscientist with C&C Reservoirs, Inc. in Houston. He obtained a BA in geology from the University of Colorado at Boulder in 1980, an MSc from the Universidad Central de Venezuela in



1995, and a PhD from the University of Texas at Austin in 1999. He has over 25 years of experience in clastic stratigraphy, depositional system analysis and reservoir geology in Venezuela, West Texas and Mexico. During the past three years, he has been synthesizing field analogs in South America and Mexico and developing a comprehensive treatise on seals based on worldwide field analogs.

A comprehensive classification, based on the number, type, location and combination of sealing surfaces was developed...

Global Temperatures for the Past Century

The highest global temperatures observed since instrumentation was available worldwide occurred in 2005 (Figure 1a). Although 1988 was statistically within the same margin of error, that year was influenced by the strongest El Niño in over a century (Hansen, et al., 2006). The warming was observed over virtually the entire globe (Figure 1b), although it was far from uniform. The environmentally fragile northern latitudes from Alaska to Greenland to Siberia experienced the largest increase in warming, stressing the ecosystem and endangering many of the animal and plant species that are native to there.

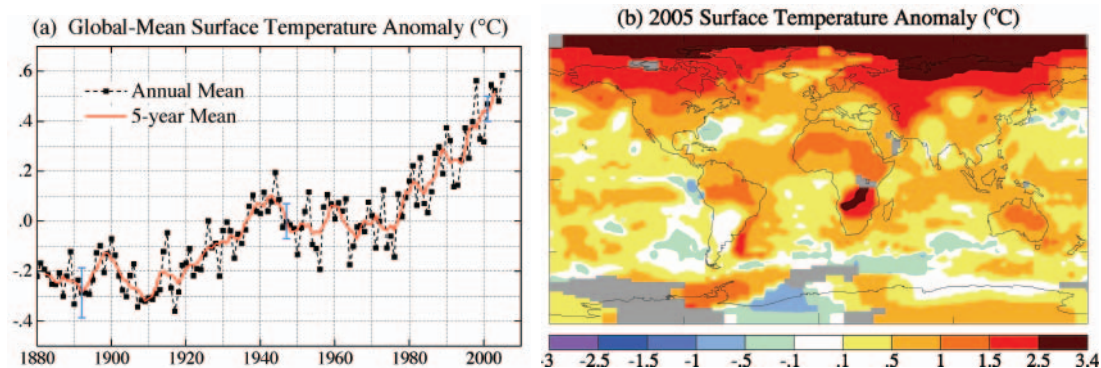


Figure (a) Global annual surface temperature relative to 1951-1980 mean based on surface air measurements at meteorological stations and ship and satellite measurements for sea surface temperature. (b) Global temperature anomaly map for the 2005 calendar year. Gray areas indicate a lack of station data within 1200km. Hansen, et al., 2006.

Global Temperatures continued on page 61