

## Horde of petroleum geostatisticians swarm Basque Country

### Report

R. Mohan Srivastava, a geostatistical consultant at FSS Canada, reports on the Third EAGE Petroleum Geostatistics Conference, held recently in Biarritz, France.

On 7 September 1897, Anton Chekov wrote in his diary 'Every Russian in Biarritz complains of the number of Russians here'. For more than a thousand years, to be invaded and over-run by outsiders has indeed been the fate of the rugged coast and sandy beaches of the Pays Basque.

The Romans were the first to do it, and named the region Aquitaine. The Visigoths soon displaced them, but were too busy plundering to bother renaming it. The barbarians were then replaced for almost 1000 years by fishermen from the north and south who loved its sheltered port. Royalty displaced the fishermen in the 1800s, when Empress Eugénie chose Biarritz as her summer home and Napoleon III obligingly built her a palace on the beach. When the aristocracy faded into the sunset, faux royalty from Hollywood like Charlie Chaplin, Frank Sinatra and Coco Chanel took their place in the 1900s.

On 7 September 2015 Biarritz suffered its latest indignity when visited upon by a horde of petroleum geostatisticians,



Biarritz, the venue for the 2015 EAGE Petroleum Geostatistics Conference.

not as uncouth as the Visigoths, nor as genteel as Coco Chanel. As a species, they have gathered before: in Toulouse, France, in 1999 and in Cascais, Portugal, in 2007. The eight-year cycle is believed to be related to the average life-span of a salmon.

They are drawn to probability and statistics, like moths to a flame. This year, they held their tribal rituals in the municipal casino that lies only a short sandy stroll from Eugénie's palace. The success of the gathering owes much to the enthusiasm of two of the ageing mammals of their population, Henning Omre (Norwegian University of Science and Technology) and Olivier Dubrule (Imperial College/Total), who served

as organizers, convenors, animators, provocateurs and bon vivants.

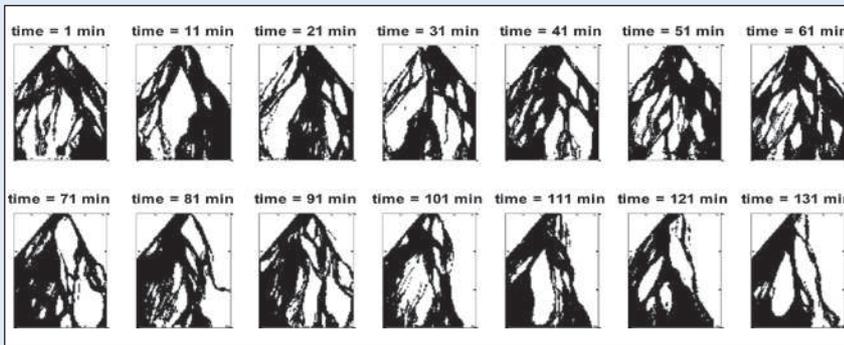
Though their numbers have dwindled since they assembled in Cascais, the survival of the species is not in doubt. Attendance was strong, 130 participants from 23 countries at a time when declining oil prices could easily be blamed for low attendance at scientific meetings with a petroleum focus. The significant participation from outside of Europe indicates that the international community holds this recurring EAGE meeting in high regard; it has become one of the go-to events on the calendar of technical meetings for those who build computer models of the rock and fluid properties of petroleum reservoirs.

Three-and-a-half days of oral and poster presentations covered a wide variety of topics. Many presentations were on the bread-and-butter issue of petroleum geostatistics, bringing more into reservoir models: more geological realism, more integration of production data, more seismic data. Several presentations addressed new challenges from the modelling of unconventional reservoirs, where geomechanical properties and kerogen content become critical. And there were a handful of case study examples: large fields where the petroleum geostatistics toolkit has measurably increased productivity and profitability, as well as smaller fields where the ability to quantify uncertainty has made it possible to assess risk and to improve decision-making in marginal prospects.

There were several presentations that deserve wider distribution, either because they seed new and promising ideas or because they ask important questions. One of note was the presentation by Celine Scheidt (Stanford



Participants fail to properly propagate a wave - maybe next time, in eight years, with some practice.



Time-lapse frames of sand channels (black) formed in a flume experiment, from Scheidt et al. (2015).

University) that asked, and began to answer, the provocative question - 'Do geostatistical models represent nature's variability?' Using time-lapse photographs from a flume that create something akin to a deltaic environment, Celine and her colleagues extracted multivariate spatial statistics from certain frames and then used this information to explore their success in creating simulations that defined a space of uncertainty. The million dollar question that no-one has previously tried to answer is whether or not the space of uncertainty created using computer wizardry and the black arts of geostatistics effectively mimics nature's space of uncertainty.

The conference was anchored by strong keynote presentations, including a rare return by François Alabert (Total) to his intellectual and professional spawning ground. Having written a widely cited thesis a quarter of a century ago, Alabert has moved far up the food chain. His remarks on what actually works and what actually makes a difference to decision-making



Taking in the poster presentations while foraging for food.

provided a great platform for the ideas and discussion that flowed over the remaining days of the conference.

In all technical conferences there is a risk (in fact, a likelihood) that the poster presentations will be regarded as belonging to a lower tier, that their abstracts were not quite good enough to warrant the limelight of an oral presentation. At this meeting, there were three organizational decisions that helped reinforce the importance of the poster presentations and that fostered good attendance and animated discussion. The first was the simple recognition that the herd will gather where they can drink and forage for food; the poster presentations were held in the room where coffee and snacks were served. The second was the opportunity that each presenter was given to introduce and promote their poster; these mini-presentations, tightly limited to 60 seconds, were done orally in front of the entire group. The third was the decision to have the final oral presentations of the day come after the poster session; this limits the natural tendency for the herd to drift away in search of the evening watering hole.

The energy of youth was very much in evidence in Biarritz: one study was actually co-authored by a teenager, Alex Gunning (CSIRO) from Australia. Gunning had to stay home, so the presentation was delivered instead by his co-author and proud father, James Gunning (CSIRO). With the success of this third meeting in this EAGE series, it is time for the next generation of petroleum geostatisticians to lead the herd back to the fourth meeting ... in 2023!



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