

Editorial

On behalf of the entire Hydrointernationalteam, I wish you a healthy and prosperous New Year. And to those readers who celebrate the start of a new year on a date other than 1st January, our best wishes are meant for you too, both now and then. As Hydrointernationalis posted to readers in more than 170 countries, I realise that this may pertain to quite a number of you.

This difference both in the start of the year and year count brings me to reference standards. If there are physical reasons such as the "0"-latitude for the equator, there is less chance for different reference standards, but, for example, for longitude it took quite a long time and much politics before the Greenwich Meridian was adopted as the longitude reference meridian at the International Meridian Conference in 1884.

Being able to determine the longitude was sought for centuries and motivated by royal rewards for a solution. For example, Galileo proposed a solution using the eclipses of Jupiter's moons (not practicable at sea on a moving ship). Longitude positioning at sea had its specific difficulties. The UK government motivated the search for a solution to this specific longitude problem by offering, approximately USD13 million in present-day currency to anyone whose method or device proved successful. It attracted many and resulted in numerous ideas. The problem was finally solved when the marine chronometer (after 40 years of hard work and trials) of John Harrison became operational in the 1760s. It involved a struggle (sometimes unfair) between scientists thinking of using the sky (for example, lunar distances or other methods), a craftsman designing a chronometer capable of keeping accurate time at sea and a Board of Longitude biased in its interests and reluctant to pay the reward (web reference 1).

It would be a well-deserved tribute to John Harrison – who with outstanding perseverance invented an operational marine chronometer – if a satellite or project were named after him.

The present situation of GNSS – where Europe recently just found ways to finance its Galileo project, which may be seen as a competitor to the US GPS – somewhat resembles this history of the longitude problem.

Anyhow, it strikes me that, now as Galileo is facing delay in the project time line and the public-private funding has failed, more critics of the Galileo are daring to be heard and are standing up. ?Similar to the then longitude affair with several solutions and new chronometer manufacturers starting in the market, several services are now available (or are becoming so) to provide accurate positioning from GNSSs: for example, GPS, GLONASS, China's COMPASS, GALILEO and augmentation services such as WAAS and EGNOS. And, of course, let's not forget the developments in India and Japan to put navigation satellites in the sky, which include additional augmentation services.

It will be beneficial if all efforts are made in a co-ordinated and co-operative way instead of the (partly unfair) rivalry as in the 18th century longitude race.

Luckily, there are positive signs: an informal body – the International Committee on Global Navigation Satellite Systems (ICG) – has been established, providing a way to discuss key technical and operational issues. The ICG aims to encourage universal access to global and regional navigational satellite systems. No doubt, the user will benefit from the work of this committee – one task being the setting reference standards (for example, what the start of the year will be, but more likely on technical levels such as frequencies, etc.). For more information see webreferences 2 and 3).

For this issue of Hydrointernationalwe did not select articles relating to GNSS techniques but to techniques used to determine position under water (as well as above water).

Enjoy your read!

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