With or Without You? â€“ Analysis of a Galileo Outage

“On Tuesday, 18 July 2019, technical weather is forecast as I get into my car on my way to an important GNSS verification test. Yesterday I received a short e-mail from the local reseller, informing me that Galileo is off air. Should the verification go ahead or not?” In this new column for ‘GIM International’, Huibert-Jan Lekkerkerk reflects on the two main lessons he learned during the recent Galileo outage.

Part of the purpose of the verification test was to validate the manufacturer’s claims about the receiver by using the associated PPP correction service from a different supplier. Because most receivers come ‘tied’ to a PPP correction service supplier, we needed to test both at the same time, even though the client is not (yet) buying a new PPP correction signal. However, that is the way it is with proprietary PPP signals and licences for certain manufacturers for certain receivers only. If you want to switch your PPP provider, you have to buy a new GNSS receiver… (this is one of my personal bugbears; I have been in open standardization too long to willingly accept this behaviour).

Getting back to the point of this column: in this case the receiver/correction provider combination supports Galileo which, according to professional wisdom (or at least the EU’s PR department), should greatly enhance the achievable accuracies. That is why we needed to discuss the issue of Galileo not being available. But the information in the e-mail was news to me. Normally I’m not slow to pick up on any GNSS news; after all, I make a living out of knowing a lot about GNSS. However, this was the first I (and the client) had heard about the outage situation. Further investigation revealed it was in fact old news. By the time I received the e-mail on 17 July, the problem had already been going on for a whole six days.

When I arrived at the verification site (a GNSS control point somewhere in the middle of the Netherlands), the reseller informed me that according to both the Galileo organization and the PPP provider, Galileo should be usable again, but we might “experience service instability”. This quote is taken from the Notice Advisory to Galileo Users issued at 08:20 on 18 July (the advisory in which they declared the system was usable again).

Therefore, we decided to switch off Galileo completely for the test… and we found that the receiver made the grade without Galileo services giving us (after three hours of logging) an average and standard deviation in height of 2.7cm using the remaining GPS, Glonass and Beidou corrections. Could we have switched it back on and obtained better results? Who knows? All I can say is that it took until 22 July before Galileo control got the system back into a completely stable state.

So, what can we learn from this situation? Two things. First of all, that we don’t *need* Galileo. It may be useful, but the other systems do a great job without it. But the most important thing I have learned is the tremendous effect your PR department can have on your operations. Why do I say this? Well, the first news release is dated 14 July but was not picked up by any major news site or the ‘in crowd’, apart from a small item on the Novatel website. It wasn’t until 18 July that the news was picked up more broadly, by which time the GSA declared the system to be usable again (except that it wasn’t…!). It is still unclear what sort of instability could have been experienced, but the system was in a poor state for four days without anybody asking any questions. And when it was fully operational again, there were no headlines whatsoever. Four days and nobody noticed or nobody cared…

Kudos to the Galileo PR department!

This is an opinion piece. The views expressed are not necessarily those of GIM International.

Announcement of the GSA (European GNSS Agency) that the Galileo Initial Services have been restored.