

Scientists meet to discuss usefulness of GMT

November 3 2011, by Marie-Pierre Ferey



Workers carry out repairs to the clock faces on St Stephen's Tower, also known as 'Big Ben' in central London, 2010. Leading scientists from around the world are meeting in Britain to consider a proposal that could eventually see Greenwich Mean Time relegated to a footnote in history.

Leading scientists from around the world are meeting in Britain from Thursday to consider a proposal that could eventually see Greenwich Mean Time relegated to a footnote in history.

For more than 120 years GMT has been the international standard for

timekeeping, but it is now under threat from a new definition of time itself based not on the rotation of the Earth, but on atomic clocks.

In January 2012, the [International Telecommunication Union](#) will meet in Geneva to vote on whether to adopt the new measure, despite protests from Britain.

The two-day meeting of about 50 experts at a country house northwest of London, under the aegis of the prestigious Royal Society, on Thursday and Friday will look at some of the issues involved.

Predictably the question has hurt Britain's national pride -- particularly when British believe their old rivals France are leading the push to change away from GMT to the new time standard.

"We understand that in Britain they have a sense of loss for GMT," said Elisa Felicitas Arias, director of the time department at the France-based [International Bureau of Weights and Measures](#) (BIPM), which pushed for the change.

GMT is based on the passage of the sun over the zero meridian line at the Greenwich Observatory in southeast London, and became the world standard for time at a conference in Washington in the United States in 1884.

France had lobbied for "Paris Mean Time" at the same conference.

In 1972 it was replaced in name by Universal Coordinated Time (UTC) but that essentially remained the same as GMT.



City workers walk through London's Canary Wharf, 2008. Leading scientists from around the world are meeting to consider a proposal that could eventually see Greenwich Mean Time relegated to a footnote in history.

UTC is based on about 400 atomic clocks at laboratories around the world but then corrected with "leap seconds" to align itself with the Earth's rotational speed, which fluctuates.

But the tiny variations between Earth speed and atomic speed have become a problem for GPS, the global positioning systems and [mobile phone networks](#) on which the modern world relies.

"These networks need to be synchronised to the millisecond," Arias said.

"We are starting to have parallel definitions of time. Imagine a world where there were two or three definitions of a kilogram."

The meeting in London will look at the implications of abolishing the

leap seconds and moving fully to atomic time.

That would see atomic time slowly diverge from GMT, by about one minute every 60 to 90 years, or by an hour every 600 years, and there would need to be "leap minutes" a couple of times a century to bring the two in line.

The proposal would then formally be voted on in Geneva.

The potential loss of GMT has prompted soul searching in the British press, particularly at a time when the country is itself considering switching to British Summer Time, one hour ahead of GMT, on a permanent basis.

The Sunday Times said GMT had "symbolised Britain's role as a Victorian superpower" but that "just as that role has inexorably diminished, so GMT itself could in effect disappear."

British science minister David Willetts has opposed the plan, saying it has become more than just a scientific row.

"This is primarily a finely balanced scientific argument but I do detect undercurrents of nationalism," he said.

"Britain's position is that we should stick to real time as experienced by humans, which is based on the Earth's rotation, not [atomic clocks](#)."

"Without leap seconds we will lose contact with the reality of Earth's rotation. Eventually our midnight would happen at noon."

China meanwhile is said to oppose the change on the grounds that its astronomers want to retain Earth-rotation based [time](#).

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