

Public consultation on leap seconds - time to change?

June 13 2014

The UK government has launched a public consultation on the future of leap seconds. This has potential impacts on several areas of astronomy and geophysics.

Leap seconds are used to keep clocks in time with the Sun. The rate at which the Earth spins varies slightly over time, but the second is defined as a precise number of oscillations of a caesium atom in an atomic clock. As a result, the times measured by [atomic clocks](#) and by the position of the Sun drift slightly, and the former occasionally has to be corrected by adding or subtracting a 'leap second'.

At unpredictable intervals (currently once every few years), a leap second is added or subtracted from coordinated universal time (UTC – more or less equivalent to GMT). This keeps UTC within a second of the time measured using the position of the Sun in the sky. This compensates for the long term slowing down or speeding up of the rotation of the Earth, which is caused by various unpredictable geophysical processes.

As leap seconds cannot be predicted in advance (as leap years can), some countries and industries would like to see leap seconds abolished and for a new timescale to take the place of UTC. This would result in a (very) gradual shift between civil time and solar [time](#). For most purposes this would make no noticeable difference for hundreds of years, but some applications which rely upon precise timekeeping would see benefits or disadvantages within a year or two. The pros and cons of this possible

change have been the subject of much technical debate over the last decade.

The International Telecommunications Union Radiocommunication Sector (ITU-R) is the international body responsible for the definition of UTC, with delegates from different national governments. The ITU-R last considered the future of leap seconds in 2012, agreeing to defer a final decision on their retention or abolition until 2015.

In the UK the government has decided to consult the wider public - a policy advocated by the Royal Astronomical Society since 2005 - and this year established a public dialogue on leap seconds. The RAS has already contributed some expert advice on timekeeping and public engagement, however we encourage any interested Fellows to engage with the consultation.

Anyone who wishes to contribute can familiarise themselves with the background information, read the reports produced so far, and take the survey to submit their evidence.

More information: leapseconds.co.uk/background/

Provided by Royal Astronomical Society

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