

## DISCUSSION CONCLUDING AAS 11-662

With regard to the Canadian provinces, Mark Storz asked what is meant by “GMT” when it is prescribed by legislation. John Seago replied that UTC is broadcast and used in practice. Storz asked if difference was merely semantics; Seago said that the legal specifications were different but UTC as presently defined appeared to satisfy legal specifications for GMT, as they represent the same thing to within one second. Referring to the earlier comment by George Kaplan that many astronomers don’t understand the difference between UT1 and UTC, David Terrett remarked almost no lawyers would understand the difference!

Frank Reed suggested that the differences in Canadian provinces was “obviously” a case of French versus English language, and “obviously the English provinces prefer something that has the name Greenwich in it.” Seago replied that was possible, but added that Québec had changed from Greenwich time only recently (2006). With regard to the table regarding different European language specifications within the EU summer-time directive, Reed offered that Slovenia had only been an independent country for about 20 years and they were trying very hard to be Middle European rather than Eastern European, and trying to appear modern by choosing UTC. That the Maltese cite GMT is due to their very long association with the UK. Reed’s point was that one should not read too much into these citations, as they simply reflect history. Seago replied that he was simply presenting the language of the EU directive.

Paul Gabor said that European regulatory texts tend to be translated by people trying to do their best but are not experts in astronomy. The translations are then debated and voted upon as they were presented. Gabor said he would like to inquire as to how these were translated, a question that may be more interesting than the EU directive language itself, because there is an official vocabulary dictionary used for translations, and if that dictionary is in error then those errors would propagate through to the legislative language.

George Kaplan asked about a slide that briefly appeared with regard to the standard time of the USA. Seago said that slide appeared in the presentation by mistake, as he had intended to omit that slide simply because of a lack of presentation time. He said that the slide’s purpose was to present some historical background on US standard time. Originally, the US codified “mean astronomical time” in 1918, but that specification was changed to “mean solar time” in 1966 after the introduction of Ephemeris Time in the 1950s and the SI second in 1960. Ephemeris time was a type of “astronomical time” that differed from mean solar time by about half a minute. The point was that the legislative standards seemed to care about differences between a time scale linked to Earth rotation versus one that was more uniform. Another point was that the US went off the mean-solar-time standard in 2007, but codified a definition for UTC which allows the USA to interpret or modify whatever it thinks UTC is. This was likely for practical reasons because the USA maintains its own realization, but legally the USA could do what it wanted.

Rob Seaman said that the notion of leap hours had been tossed around, as well as the notion of hiding hourly adjustments within the daylight-saving time or time-zone systems. He commented that there are very interesting holes in the map of daylight-saving time practices, including Arizona, and that the changes in summer-time between the northern and southern hemisphere in oppo-

site direction gets to be very confusing. Terrett said that these systems show that societies can indeed cope with shifting clocks by an hour; it is something that *can* be done, even if it is not practiced in every country now. Seago responded that, while people can tolerate such practices, this doesn't mean that they prefer it. He had also found a map which showed that most of the world has experimented with daylight saving time at one point but no longer. Seago said the trend seems to be that more and more nations are getting away from making seasonal clock adjustments. At this point, summer-time adjustment is pre-dominantly a North-American and a European phenomenon, and these nations dominate the ITU-R study groups that came up with the leap-hour proposal.