

Leap Seconds?

UTC – A Cautionary Tale

Rob Seaman, National Optical Astronomy Observatory

SKYSCAN
ATOMIC CLOCKS


PIQUOT
MERIDIEN


PATEK PHILIPPE
GENEVE

TIMEX
LIFE IS TICKING

CITIZEN
SELECT A COUNTRY

LONGINES


swatch 


ROLEX



 **BULOVA**

UTC ~~is~~ *was* our default time scale

- * UT has been the “general equivalent” of GMT
- * $| \text{UTC} - \text{UT1} | < 0.9\text{s}$ *This may change!*
- * The precision timing community has been seeking a fundamental change to UTC since before Y2K
- * Their nefarious plot requires UTC name be retained
- * McCarthy, *et. al.*, letter in March AAS Newsletter
- * Whether or not change is made, astronomers can no longer rely on an “obvious” choice
- * VO (& FITS, *etc.*) must support alternatives

What does “no leap seconds” mean?

- * UTC, & variants like Julian Day, convey time-of-day, *i.e.*, mean solar time on each standard meridian
- * Notion is to replace leap seconds with leap hours
- * Leap seconds are issued roughly every 18 months, leap hours would be needed every 600 years
- * Since a time zone is one hour wide, the notion of “leap hours” is equivalent to “no more time-of-day”
- * UTC-based civil time is a big convenience feature
- * Remediation after a change would be expensive
- * In any event, many astronomical projects would benefit from rigorous use of other time scales

Leap Seconds?

<http://www.ucolick.org/~sla/leapsecs>

<http://iraf.noao.edu/~seaman/leap>