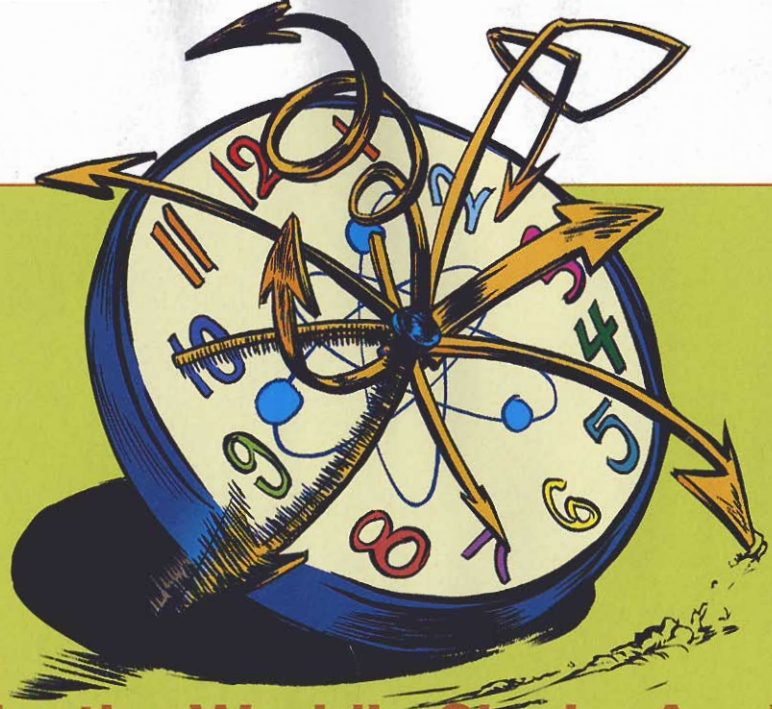

TIME

Why the World's Clocks Are Wrong

It's later than you think. Or earlier. It depends on which clock you're looking at – the world's timekeepers can't get synchronized. The International Bureau of Weights and Measures adopted Coordinated Universal Time, or UTC, in 1972. But it's a kludge, merging atomic time (1 second is 9,192,631,770 specific oscillations of a cesium 133 atom) with rotational time (1 second is 1/86,400 of a day). And it keeps getting kludgier: For some reason, Earth's rotation is slowing, forcing our atomic time lords to insert corrective "leap seconds."

It's a bad situation. The telecom industry, among others, relies on precise timekeeping. At the bureau's word, clocks register a leap second by marking 23:59:59 twice – early in the business day in Asia. Global positioning satellites' internal atomic clocks race 13 seconds ahead of UTC. The European satellite navigation constellation, Galileo, will likely vary from International Atomic Time by 33 nanoseconds. Coordination of timescales is so quirky that "people say it's a wreck waiting to happen," says Dennis McCarthy, head of the US Naval Observatory's Directorate of Time.

So what's to be done? Astronomers use rotational time to aim telescopes, so they favor the leap second. Shorter leaps, more often, might work. (Leap milliseconds?) Others want to rely solely on atomic time. An International Telecommunication Union working group, moving with a speed typical of global bureaucracies, is waiting to hear more ideas. Time is not on their side. **– Adam Rogers**

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