

Coordinated Universal Time

The times of various events, particularly astronomical and weather phenomena, are often given in "Universal Time" (abbreviated UT) which is sometimes referred to, now colloquially, as "Greenwich Mean Time" (abbreviated GMT). The two terms are often used loosely to refer to time kept on the Greenwich meridian (longitude zero), five hours ahead of Eastern Standard Time. Times given in UT are almost always given in terms of a 24-hour clock. Thus, 14:42 (often written simply 1442) is 2:42 p.m. Sometimes the character Z is appended to a time to indicate UT, as in 0935Z (Zulu). This is referred to as Military Time. When a precision of one second or better is needed, it is necessary to be more specific about the exact meaning of UT. For that purpose different designations of Universal Time have been adopted. In astronomical and navigational usage, UT often refers to a specific time called UT1, which is a measure of the rotation angle of the Earth as observed astronomically. It is affected by small variations in the rotation of the Earth, and can differ slightly from the civil time on the Greenwich meridian. However, in the most common civil usage, UT refers to a time scale called "Coordinated Universal Time" (abbreviated UTC), which is the basis for the worldwide system of civil time. During the winter months, UTC is the civil time scale for the United Kingdom and Ireland. It is also equivalent to the civil time for Iceland, Liberia, Morocco, Senegal, Ghana, Mali, Mauritania, and several other countries.

One can think of UT1 as being a time determined by the rotation of the Earth, over which we have no control, whereas UTC is a human invention. It is relatively easy to manufacture highly precise clocks that keep UTC, while the only "clock" keeping UT1 precisely is the Earth itself. Nevertheless, it is desirable that our civil time scale not be very different from the Earth's time, so, by international agreement, UTC is not permitted to differ from UT1 by more than 0.9 second. When it appears that the difference between the two kinds of time may approach this limit, a one-second change called a "leap second" is introduced into UTC. This occurs on average about once every year to a year and a half. Greenwich Mean Time is a widely used historical term, however, due to ambiguity, its use is no longer recommended in technical contexts.

Daylight Savings

UTC does not change with a change of seasons; however, local time or civil time may change if a time zone jurisdiction observes daylight saving time or summer time. For example, UTC is 5 hours ahead of local time on the east coast of the United States during the winter but 4 hours ahead during the summer.



Not all time zones observe daylight saving.