

## How Meteorologists Read Time

- When people discuss time, they will use phrases such as: ‘Right now it is 9:00 A.M EDT....’ or ‘The game begins at 4:00 P.M. PST.’
- Because there are numerous time zones around the world, meteorologists who look at and refer to the same data decided to use one time scale so that it would be easier to communicate with each other.
- This time scale is known as ‘Greenwich Mean Time’ (GMT).
  - It is also known as ‘Coordinated Universal Time’ (UTC), or ‘Zulu Time’ (Z).
- GMT is simply military time based in Greenwich, England.
  - Midnight in Greenwich, England is represented by 0000Z. 3:00 A.M. is represented by 0300Z. Noon is equivalent to 1200Z. 5:30 P.M. is equivalent to 1730Z. 11:30 P.M. is represented by 2330Z.
- Notice in GMT, there are no colons (:) or the use of ‘P.M.’ or ‘A.M.’ The time is followed by the letter ‘Z’. Sometimes the ‘Z’ is replaced by ‘GMT’ or ‘UTC’.
- During Daylight Saving Time, New York is behind Greenwich, England by four hours.
  - Therefore, if it is 0000Z Tuesday, it means that it is midnight (12:00 A.M.) Tuesday in Greenwich, England and 8:00 P.M. Monday in New York City.
    - Remember New York City during Daylight Saving Time is four hours behind Greenwich, England.
  - If it is 1200Z Friday, it means that it is 12:00 P.M. Friday in Greenwich, England and 8:00 A.M. Friday in New York City.
  - If it is 2230Z Sunday, it means that it is 10:30 P.M. Sunday in Greenwich, England and 6:30 P.M. Sunday in New York City.
- Often when it is at the top of the hour the minutes in the GMT display will be omitted.
  - For example 0000Z is usually referred to as 00Z. 0300Z is equivalent to 03Z or even 3Z. 1200Z is equivalent to 12Z. 2300Z is equal to 23Z.
- During Daylight Standard Time, New York is behind Greenwich, England by five hours.
  - Therefore, if it is 0000Z Tuesday, it means that it is midnight (12:00 A.M.) Tuesday in Greenwich, England and 7:00 P.M. Monday in New York City.
    - Remember New York City during Daylight Standard Time is five hours behind Greenwich, England.
  - If it is 1200Z Friday, it means that it is 12:00 P.M. Friday in Greenwich, England and 7:00 A.M. Friday in New York City.

- If it is 2230Z Sunday, it means that it is 10:30 P.M. Sunday in Greenwich, England and 5:30 P.M. Sunday in New York City.
- Fill in the blank (assuming Daylight Saving Time):
  - 1244Z July 30th = \_\_\_\_\_ EDT
  - 0120Z May 1st = \_\_\_\_\_ EDT
  - 00Z September 1st = \_\_\_\_\_ EDT
  - \_\_\_\_ Z \_\_\_\_\_ = 11:30 P.M. June 18th EDT
  - Let us first consider 1244Z July 30th.
  - If it is 1244Z July 30th, that means it is 12:44 P.M. July 30th in Greenwich, England and 8:44 A.M. July 30th in New York City.
  - Next, let us take up 0120Z May 1st.
  - If it is 0120Z May 1st, that means it is 1:20 A.M. May 1st in Greenwich, England and 9:20 P.M. April 30th in New York City.
  - Remember that since we go from A.M. to P.M. we move *back* one day and that April only has 30 days.
  - We will now consider 00Z September 1st.
  - Remember 00Z translates to 0000Z.
  - If it is 0000Z September 1st, that means it is 12 midnight September 1st in Greenwich, England and 8:00 P.M. August 31st in New York City.
  - Lastly, let us now take up 11:30 P.M. June 18th.
  - If it is 11:30 P.M. June 18th EDT, it is 3:30 A.M. June 19th in Greenwich, England.
  - Remember when you go from P.M. to A.M. you move *forward* a day.
  - In Zulu time, 3:30 A.M. June 19th is equivalent to 0330Z June 19th.
- Fill in the blank (assuming Daylight Standard Time)
  - 2222Z March 8th = \_\_\_\_\_ EST
  - 0920Z January 30th = \_\_\_\_\_ EST
  - 15Z March 14th = \_\_\_\_\_ EST
  - \_\_\_\_ Z \_\_\_\_\_ = 11:30 A.M. April 5th EST
  - Let us first take up 2222Z March 8th.
  - If it is 2222Z March 8th, that means it is 10:22 P.M. March 8th in Greenwich, England and 5:22 P.M. March 8th in New York City.
  - Next, let us take up 0920Z January 30th.
  - If it is 0920Z January 30th, that means it is 9:20 A.M. January 30th in Greenwich, England and 4:20 A.M. January 30th in New York City.
  - Now, we will consider 15Z March 14th.
  - 15Z March 14th is equivalent to 1500Z March 14th.

- If it is 1500Z March 14th, that means it is 3:00 P.M. March 14th in Greenwich, England and 10:00 A.M. March 14th in New York City.
  - Lastly, we will consider 11:30 A.M. April 5th.
  - If it is 11:30 A.M. EST April 5th, that means it is 4:30 P.M. April 5th in Greenwich, England.
  - In Zulu time 4:30 P.M. April 5th is equivalent to 1630Z April 5th.
- Remember that the months of September, April, June and November have thirty days. The rest, except February have thirty-one days.

**Helpful Links [Greenwich Mean Time]:**

<http://www.greenwichmeantime.com/time-zone/usa/eastern-time/convert/>

<http://www.ndbc.noaa.gov/gmt.shtml>

**Helpful Link [U.S. States]:**

<http://www.lizardpoint.com/fun/geoquiz/usaquiz.html>