Homework Assignment
(Global Precipitation Measurements Webinar)
Due by April 30, 2015

1. Satellite remote sensing observations are sufficient to provide precipitation estimation, there is no need for any in situ, surface measurements

    a) True   **b) False**

2. Which electromagnetic frequencies are used for indirect estimates of precipitation?

    a) Infrared and Microwave
    b) Visible and Infrared
    c) Microwave and Visible

3. Microwave frequency of 85 GHz is used for remote sensing of liquid water

    a) True   **b) False**

4. Name the sensors flying on GPM core satellite
    GMI and DPR

5. TMI and GMI are active remote sensors

    a) True   **b) False**

6. Which of the following is true?

    a) TRMM is in a low earth inclination orbit and GPM is in a polar orbit
    b) TRMM and GPM are both in polar orbits
    c) TRMM and GPM are both in non-polar orbits

7. GPM provides observations with spatial coverage between

    a) 65°S – 65°N
    b) 35°S – 35°N
    c) 90°S – 90°N

8. GPM is the first satellite to carry a radar in space

    a) True   **b) False**

9.   Level-2 precipitation products from TRMM and GPM provide

   a) Uniformly Gridded Data
   b) Orbital Swath Data

10.   These sensors have better light rain detection capability

   a) VIRS and TMI
   b) TMI and PR
   c) GMI and DPR

11.   GPM Precipitation data product 2A-CMB is derived from

   a) GMI and DPR
   b) GMI and Constellation Satellite Microwave Measurements
   c) GMI alone

12.   What are the spatial and temporal resolutions of the IMERG Precipitation
       data product
       (0.1 degree, half-hour)

13.   Which sensor would be more useful to measure snow fall rate over northern
       Europe in January?

   a) TMI
   b) PR
   c)   DPR

14.   This data access tool does not provide data visualization capability

   a) Giovanni-4
   b) Mirador
   c) STROM

15.   This tool allows users to get area-averaged time series of precipitation

   a) Giovanni-4
   b) Mirador
   c) STROM

16.   This tool allows users to get GeoTIFF image of precipitation data

   a) Giovanni-4
   b) Mirador

c) STROM

17. This tool allows GPM data visualization by using Tool for High
     Resolution Observation Review (THOR)

     a) Giovanni-4
     b) Mirador
     c) STROM

18. Which one of the following precipitation products has the higher spatial
     resolution?

     a) TMPA
     b) IMERG

19. Which GPM Level-3 product would you use to track a tropical storm? Why?
     **IMERG because of its half-hourly, high resolution (0.1 degree) coverage
     (Brock - temporal part is more important)**

20. List at least one advantage and one limitation of using remote sensing for
     precipitation observations
     **Provides uniform, continuous coverage that in situ measurements can
     not. Also provides coverage over oceans.**

     **Limitation: Multiple data products, spatial/temporal/ resolutions and
     coverage, data accuracy – may all not be ideal. Require regional validation/error
     estimates.**