Access NASA Satellite Global Precipitation Data Visualization on YouTube

ED21A-0260
2017 AGU Fall Meeting

NASA/Goddard EARTH SCIENCES DATA and INFORMATION SERVICES CENTER (GES DISC)

Z. Liu[1,2](Zhong.Liu@nasa.gov), J. Su[1,3], J. Acker[1,3], G. Huffman[4], B. Vollmer[1], J. Wei[1,3], and D. Meyer[1]

[1]NASA Goddard Earth Science Data and Information Services Center (GES DISC)
[2]CSISS, George Mason University; [3]The Adnet Systems, Inc.; [4]NASA GSFC

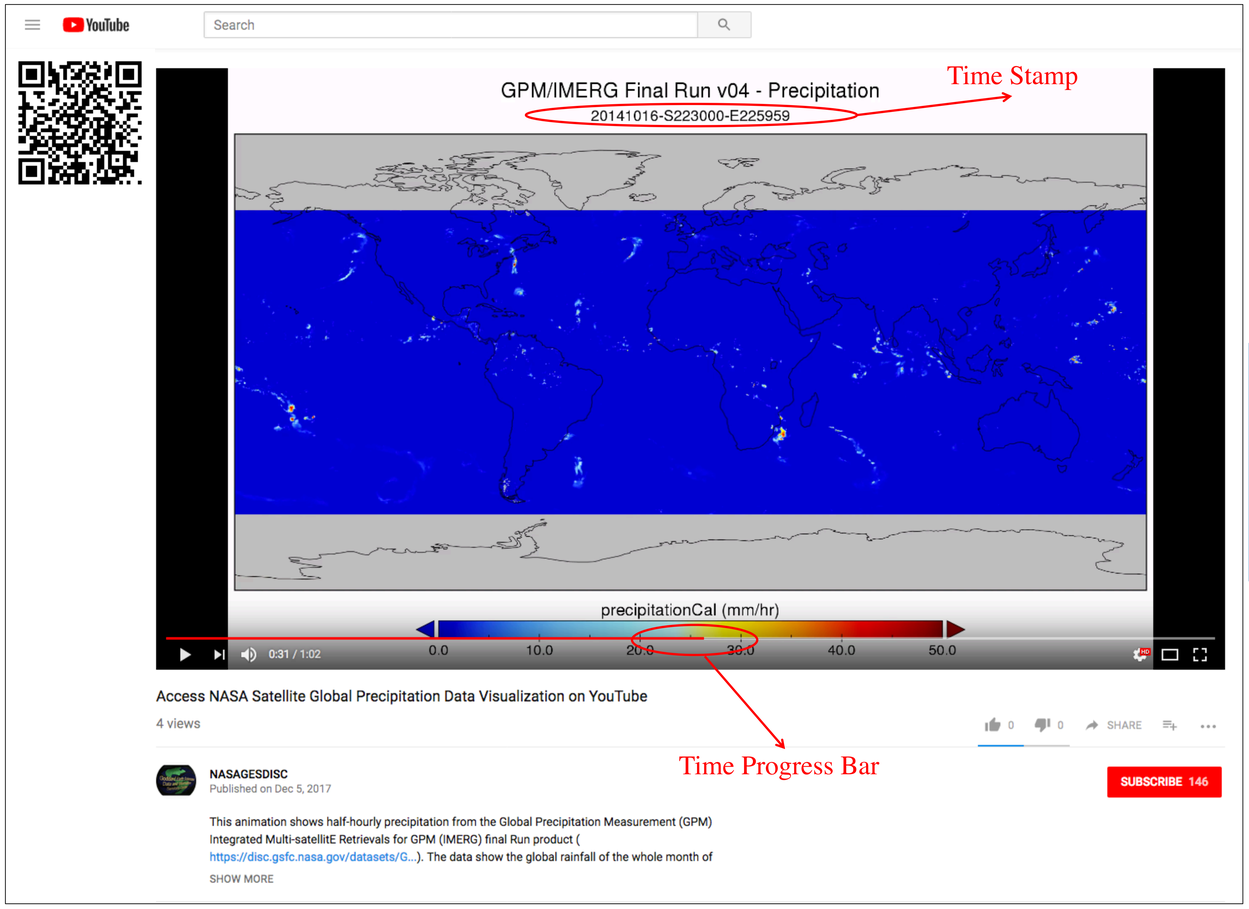
Abstract

Since the satellite era began, NASA has collected a large volume of Earth science observations for research and applications around the world. The collected and archived satellite data at 12 NASA data centers can also be used for STEM education and activities such as disaster events, climate change, etc. However, accessing satellite data can be a daunting task for non-professional users such as teachers and students because of unfamiliarity of terminology, disciplines, data formats, data structures, computing resources, processing software, programming languages, etc. Over the years, many efforts including tools, training classes, and tutorials have been developed to improve satellite data access for users, but barriers still exist for non-professionals. In this presentation, we will present our latest activity that uses a very popular online video sharing Web site, YouTube (https://www.youtube.com/), for accessing visualizations of our global precipitation datasets at the NASA Goddard Earth Sciences (GES) Data and Information Services Center (DISC). With YouTube, users can access and visualize a large volume of satellite data without the necessity to learn new software or download data.

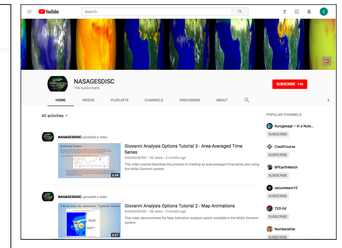
The dataset in this activity is a one-month animation for the GPM (Global Precipitation Measurement) Integrated Multi-satellite Retrievals for GPM (IMERG). IMERG provides precipitation on a near-global (60 deg. N-S) coverage at half-hourly time interval, providing more details on precipitation processes and development compared to the 3-hourly TRMM (Tropical Rainfall Measuring Mission) Multi-satellite Precipitation Analysis (TMPA, 3B42) product. When the retro-processing of IMERG during the TRMM era is finished in 2018, the entire video will contain more than 330,000 files and will last ~3.6 hours. Future plans include development of fly-over videos for orbital data for an entire satellite mission or project. All videos, including the one-month animation, will be uploaded and available at the GES DISC site on YouTube (https://www.youtube.com/user/NASAGESDISC).

GPM IMERG Precipitation on YouTube

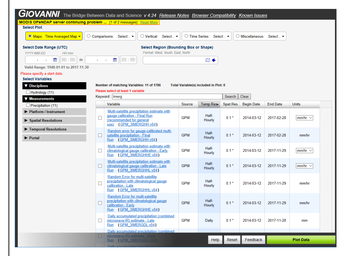
https://www.youtube.com/user/NASAGESDISC



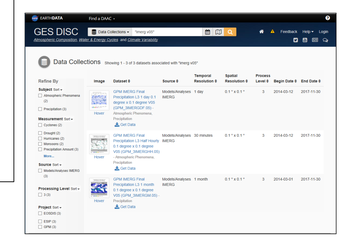
Above: This animation shows the global half-hourly precipitation for the whole month of October, 2014 from the Global Precipitation Measurement (GPM) Integrated Multi-satellitE Retrievals for GPM (IMERG) final Run product (https://disc.gsfc.nasa.gov/datasets/GPM_3IMERGHH_V05/summary). Since the time stamp is on each frame of the video, you can navigate to any time by dragging the time progress bar.



Above: GES DISC on YouTube, containing videos of events, tutorials, and more.



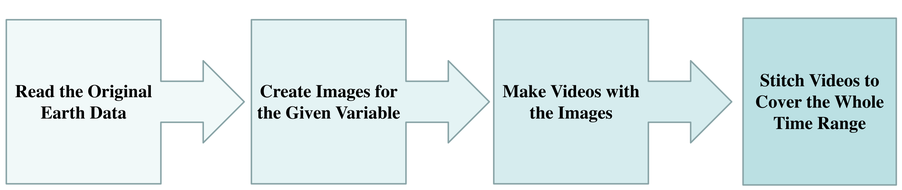
Above: Giovanni – an online visualization and analysis tool allowing access to over ~1700 variables at GES DISC without downloading software and data.



Above: Access raw GPM precipitation and other data at GES DISC with a newly designed Web interface

When you find an interesting event and need further analysis/visualization, you could either use Giovanni (https://giovanni.gsfc.nasa.gov/giovanni/#service=TmAvMp&starttime=&endtime=&data=GPM_3IMERGHH_04_precipitationCal), a friendly online tool to visualize and analyze over ~1700 variables at GES DISC, or access raw data at GES DISC (https://disc.gsfc.nasa.gov/datasets/GPM_3IMERGHH_V05/summary)

How Is It Generated?



Future Plans: 1) Expand the IMERG video to the TRMM era; 2) Develop fly-over videos for orbital data for the entire satellite mission

GPM products: https://disc.gsfc.nasa.gov/datasets?keywords=GPM **Giovanni:** https://giovanni.sci.gsfc.nasa.gov/ **GES DISC:** https://disc.gsfc.nasa.gov ***Suggestions or subscription to our mailing list:*** gsfc-help-disc@lists.nasa.gov