

## STEM Careers Exploration Teacher Guide

### Overview:

This presentation includes links to videos about scientists and engineers working with the Global Precipitation Measurement Mission (from the Faces of GPM series), as well as other STEM careers videos, followed by a number of links to online career resources. It is designed to be used by students working at their own pace, choosing which videos and links they are interested in watching and exploring, but could also be used in front of a larger group.

### Objectives:

- Students will research STEM careers and explore information about careers in which they have an interest.
- Students will identify personal skills and abilities related to career interests and develop a career goal.

### National Standards:

While STEM careers are not directly addressed in the Next Generation Science Standards (beyond the inclusion of engineering practices), the Framework for K-12 Science Education emphasizes the need for the standards as preparation for future careers, STEM and other fields. For more information, visit: [www.nextgenscience.org](http://www.nextgenscience.org).

### Materials:

- computers
- headphones (optional)
- copies of [student capture sheet](#) (optional)

### Teacher Notes:

The accompanying [student capture sheet](#) asks students to choose two of the videos to watch (one from the Faces of GPM series) and write down a few notes, then decide if they would like to have the career described. After that, students brainstorm about their own skills and abilities to help them think about good career choices for them (or take the quiz at <http://thefunworks.edc.org/SPTUI--FunWorks/funworks/quiz.php> if they're stuck). Next, they spend some time exploring the career links in the presentation, focusing on three careers they might like to pursue. Finally, students are asked to set a goal, something they can start doing now to help them get the job they want in the future.

### Outline of the [STEM Careers Presentation](#)

Introduction [[slide 2](#)]: "What career(s) might be in your future? Watch a few of the videos about scientists, engineers and others in STEM-related careers on the following slides, then use the online resources on the last two pages to explore careers that might fit your interests and abilities."

The Faces of GPM video series includes:

- Dr. Dalia Kirschbaum discusses her role with GPM, how she became a scientist and how remotely sensed satellite data can be used to study and evaluate natural hazards such as landslides (3:04): <http://gpm.nasa.gov/education/videos/faces-gpm-dr-dalia-kirschbaum-gpm-applications-scientist> [[slide 3](#)]. For more about Dr. Kirschbaum's background: <http://neptune.gsfc.nasa.gov/hsb/personnel/index.php?id=462>.

# Global Precipitation Measurement Mission

- Profile of Steve Nesbitt, a professor of Atmospheric Sciences at the University of Illinois and a mission scientist on GPM ground validation field campaigns. Nesbitt uses the data collected from radars, aircraft probes, and surface instrumentation to improve the representation of cloud microphysical processes in satellite precipitation algorithms. This will help improve global precipitation estimates (2:48). <http://gpm.nasa.gov/education/videos/faces-gpm-professor-steve-nesbitt-gpm-ground-validation-scientist> [slide 4]. For more about Dr. Nesbitt's background: <http://www.atmos.illinois.edu/people/nesbitt.html>.
- An interview with Beth Weinstein, a GPM integration and test engineer; Lisa Bartusek, GPM Deputy Mission Systems Engineer and Carlton Peters, associate branch head at NASA Goddard Space Flight Center and the GPM thermal branch development lead. These engineers are all part of the larger integration and test team that put the spacecraft through its paces and prepare it for launch (3:18) [slide 5]. <http://gpm.nasa.gov/education/videos/faces-gpm-engineers>

Other STEM careers videos included:

- Learn about the group of men and women who fly aircraft through the eyes of hurricanes, to collect data to help meteorologists (such as those at the National Hurricane Center) study and predict storms. You'll also get a chance to see some of the interesting data they have collected in their flights (5:09). <http://gpm.nasa.gov/education/videos/real-world-hurricane-hunters> [slide 6]
- Short *NASA Now* videos (from the NASA Explorer Schools program) introduce you to various people who work at NASA in a number of different fields [slide 7].
  - Inspiration and Education: Building a Career at NASA (1:25) <http://youtu.be/6NFtkXKBcdI>
  - Careers: From Teacher to Astronaut (0:56) <http://youtu.be/GhBbpecZ8Y4>
  - Engineering Careers at NASA (1:17) <http://youtu.be/2IXUuOtgZpY>

Individual Exploration [slides 8 & 9]: "Now it's your turn to see what careers might match up with your interests and abilities. Check out these websites (more on the next slide) to get you started:"

- At The Fun Works site you can browse by category or search keywords. It even has a short quiz to help guide you if you're not sure where to start. <http://thefunworks.edc.org>.
- The Bureau of Labor Statistics lets you browse jobs by category, see what education level is required, and shows you how much you might make. You can also find out whether there are likely to be more or fewer jobs in that field in the future. <http://www.bls.gov/k12/students.htm>.
- Try Career One Stop for videos about what it means to work in various fields, and the skills and abilities employers are seeking. <http://www.careeronestop.org/Videos/default.aspx>.
- Check out career options specifically at NASA—it's more than just being an astronaut! <http://www.nasa.gov/audience/forstudents/careers-index.html> Or watch this video about launching your career with NASA <http://youtu.be/II9pRG9eW9s>.

# Global Precipitation Measurement Mission

- Interested in careers about the ocean and atmosphere? See what the National Oceanic and Atmospheric Administration has to offer. [http://www.education.noaa.gov/Special\\_Topics/Careers\\_and\\_Technology.html](http://www.education.noaa.gov/Special_Topics/Careers_and_Technology.html).
- O\*NET OnLine can direct you to jobs that specifically require knowledge of different STEM disciplines. <http://www.onetonline.org/find/stem?t=0&g=Go>.
- Aimed at girls (but boys can check it out too!), Career Girls has video interviews with a number of women in various fields about their jobs, educational background, challenges and successes, and advice to girls. <http://www.careergirls.org/>.

## Additional Resources:

- A resource not included in the links on the final two slides is a more extensive computerized interest profiler, available here: <http://www.onetcenter.org/CIP.html?p=3>. It's a free piece of software, but does require download and installation on the computer ahead of time. The program asks 180 questions about various topics and interests, so it could be time consuming, although it may provide valuable career path insight for students.