

GPM: Making science fun for kids through comics

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Credit: NASA

To get young students reading about science, NASA is trying something different. Instead of a press release or a scientific paper, the Global Precipitation Measurement (GPM) mission has launched a Japanese manga-style comic book.

GPM, a satellite collaboration between NASA and the Japan Aerospace Exploration Agency, provides global estimates of rain and snow every three hours using advanced instruments.

In spring 2013, a GPM Anime Challenge was held for artists from around the world aged 13 years and up to develop an anime-themed character for teaching students about the GPM mission.

By participating in the contest, entrants learned about the GPM mission and its science themes, including the water cycle, weather and climate, technology, and societal applications. Contest participants were required to incorporate this information into their anime character design.

The lead characters in the anime project were selected from more than 40 submissions by a panel of NASA scientists and outreach specialists. The grand prize winners were "GPM" by Yuki Kiriga of Tokyo and "Mizu-chan" by Sabrynne Buchholz of Hudson, Colorado.

Kiriga is a [comic book](#) writer and illustrator who works for various Japanese publishing companies and enjoys drawing satellite illustrations. Her winning character was a personification of the Earth-observing satellite, GPM, for which the anime character is named. Buchholz, then age 14, was the president of her school's art club and planning a career in animation. Her winning character for the contest was Mizu-chan (mizu is water in Japanese) who personifies water and precipitation.

The genesis of the project came from Dorian Janney, an education and communication specialist for GPM, who was keenly aware of the challenges in drawing the attention of students to science, technology, engineering and math (STEM) topics from her previous experience as a middle school science teacher.

"When observing students in my classes," explained Janney, "I noticed that many of them, especially the girls, would doodle anime or manga style characters with characteristic large doe-like eyes."

When Janney started working for GPM developing its educational outreach program, she saw this interest as an opportunity to connect with young people, especially young women, and engage them in STEM while tapping into the connection to the Japanese culture of the mission's partner.

Developing the GPM Comic Book

With the lead characters selected, the GPM team crafted a story worthy of these designs. GPM education and communication specialist Kristen

Weaver and science writer Ellen Gray collaborated on a space-borne tale about the adventures of the GPM and Mizu-Chan characters. The writing team developed a story that wove together the science and engineering of the mission in bringing GPM from development to launch and ultimately to its orbit around Earth. "The idea is to introduce kids to the technology and science goals of the GPM satellite but also make it engaging so that they will want to read the through to the end to find out what happens," explained Weaver.

While working on the script, the GPM team found the blog of illustrator Aja Moore. Moore's anime-influenced style and attention to detail, particularly her strong skills in perspective and technical drawing, appealed to the writers. Moore agreed to take on the project and development of the comic book began. The comic book process moved from initial concept, through pencil drawings, to inking the outlines and then adding the vibrant colors of the final product.

While the comic book explains the GPM mission and goals, the team felt that additional materials would provide students with a deeper understanding of the topics. So while Moore was drawing and coloring the comic pages, the GPM team developed additional educational materials. These supplemental materials include an overview of the GPM mission, a description of the satellite and its instruments, examples of the data it collects, descriptions of some of the constellation partners and a glossary of science terms used in the comic, with graphic design from GPM web developer Jacob Reed.

The comic book is already receiving positive feedback from educators. Pat Benner, a sixth grade teacher at Somerset Intermediate School in Westover, Maryland, commented that it "would be a great 'hook' to introduce [her students] to the mission, perhaps sharing the parts and role playing." Veshell Lewis, a ninth grade teacher at Callaway High School in Jackson, Mississippi, said that her students loved the graphics and storyline, and the scientific information provided within the story and the glossary helped them gain an understanding of new scientific terms.

Teachers for younger students are also finding ways to adapt the comic book to their needs. Beth Williams of Prendergast Elementary School in Ansonia, Connecticut, and her fourth graders read the comic book together projected on their classroom smart board. Williams said, "I was able to show them how to follow the conversations between characters and boxes. It was a big hit! We read it once for content and then again to examine the drawings. We talked about the connection with Japan and they loved the artistry."

Creating a comic book required collaboration of a team with a broad range of specialties that resulted in a fun and unusual teaching tool to get students excited and interested in learning more about Earth science and STEM.

View the comic at pmm.nasa.gov/education/comics

Provided by NASA

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