Nature of Science and Math: Analyzing the Presence in Everyday Communication

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Article - ICESat: Space will get unprecedented view of Earth's ice

Part A – 3 Tenets of the Nature of Science

1) Science is a way of knowing.

The article demonstrates the tenet of science as a way of knowing throughout its entirety. Beginning with the title of the article itself (as seen above), the reason for the satellite launch is to know more about the melting ice caps. The satellite will collect data on the thickness of the ice throughout the seasons and years to come. It is an endeavor by NASA to record and know what the situation is with the glacial melting.

2) Science is a human endeavor.

With global warming and the melting of the ice caps being in forefront of issues of today, this article demonstrates that scientists are concerned with this issue as well. After the first satellite attempt had some flaws, this time around there were some imaginative ideas added to the satellite. For example, the laser mounted is much more reliable with a much better resolution as well. This technology has come a long ways even in the short years since the early 2000s when the first satellite was launched for this project.

3) Science addresses questions about the natural and material world.

Even slight amounts of the polar ice cap melting have some drastic implications for our planet’s future water levels. This article shows that NASA is addressing this issue in part by sending a satellite into orbit in order to take on data collection and answering pertinent questions. These include, “How much are the ice caps changing?”, “How quickly?”, and “Can we produce a robust sea map of the polar ice caps?”.

Part B – 3 Practices of the CC Math Practices

1) Make sense of problems and persevere in solving them.

The name of this satellite is the ICESat-2 with the implication that there was a first satellite. Since its launch in the early 2000s, the first satellite was riddled with technical difficulties and could only record data a few months out of the year. NASA problem solved and designed this satellite to map more of the surface and do so throughout the year. This demonstrates that NASA has been persevering for years on this problem and have designed a better laser than their initial satellite for this project.

2) Attend to precision.

The satellite uses what is called “photon counting” to measure the ice height. It is accurate to within 1cm. The laser itself is making a measurement every 70cm it moves across the ice. This will allow NASA to build a very powerful and accurate rendering of the polar ice caps.

3) Reason abstractly and quantitatively.

Antarctica and Greenland are losing billions of tons ice each year resulting in a very slow rise in sea levels worldwide. It is unknown exactly how much and for how long we have been losing glacial mass. It is predicted that some of the northern sea-ice has lost up to two thirds of its mass. NASA took on this problem abstractly by getting ‘eyes in the sky’ so to speak. Their satellite will be able to monitor quantitatively what is being lost each year. Their mounted laser can accurately take measurements and help build an ice-map as well.

References

Amos, J. (2018, September 15). *ICESat: Space will get unprecedented view of Earth’s ice.* Retrieved from http://www.bbc.com/news

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