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ASTRONOMY

Scientific knowledge grows through human interaction

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By Tom Statler



You've probably heard it said that science is a human enterprise. That's not always intended as a compliment. Sometimes the implication is that science is subjective, politically driven and not concerned with objective truth.

I'm in Baltimore, writing from the Asteroids-Comets-Meteors conference, an international gathering of scientists working to understand the small rocky and icy chunks in our solar system.

My graduate student and I are here to share what we've discovered about some of the stadium-size asteroids that cross the orbit of Earth.

These conferences are all about sharing knowledge. I keep asking my student: "What's the most interesting thing you heard today?"

For me, it is the simulations that show how fast-spinning asteroids can fling material off their midsections that can reassemble and make a new asteroid orbiting the first.

A scientific conference is a pretty intense and an entirely human affair. Rapid-fire PowerPoint, coffee-energized argument, collaboration and competition.

A team of Polish astronomers is using a telescope in South Africa to do the same thing we are. The Poles have more data, but we're ahead on the analysis. Will we end up as colleagues or competitors?

Opportunities for disagreement are everywhere. Our work has direct bearing on a theory of asteroid structure developed by one of the attendees. I showed our results, suggesting that the theory might be wrong. Half an hour later, another speaker showed different data that suggested that the theory might be right.

What's next? Fistfights? The three of us retiring to a smoke-filled room to agree on a "consensus" that will then be pontificated as truth? No, disagreement provokes healthy argument and deeper research. We all have more work to do.

Scientists being human doesn't devalue science. One of the goals of astronomy is to understand those things about the universe that would be true even if humans didn't exist.

That we are emotional and

instinct-driven and have the capacity to uncover facts is one of the most uplifting aspects of being human.

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