Letter from Doctor Petrova

Hello, professionals. My name is Doctor Irina Petrova and I work at the Pulkovo Observatory in St. Petersburg, Russia.

I am writing to you to ask for help.

For the past two years, I have been working on a theory related to infrared emissions from nebulae. As a result, I have made detailed observations in a few specific IR bands of light. And I have found something odd – not just in any nebula, but here in our own solar system.

There is a very faint, but detectable line in the solar system that emits infrared light at the 25.984 micron wavelength. It seems to be solely that wavelength with no variance.

Attached are Excel spreadsheets with my data. I have also provided a few renders of the data as a 3-D model.

You will see on the model that the line is a lopsided arc that rises straight up from the sun’s North Pole for 37 million kilometers. From there, it angles sharply down and away from the sun, towards Venus. After the arc’s apex, the cloud widens like a funnel. At Venus, the arc’s cross-section is as wide as the planet itself.

The infrared glow is very faint. I was only able to detect it at all because I was using extremely sensitive detection equipment while searching for IR emissions from nebulae.

But to be certain, I called in a favor from the Atacama observatory in Chile – in my opinion the best IR observatory in the world. They confirmed my findings.

There are many reasons one might see IR light in interplanetary space. It could be space dust or other particles reflecting sunlight. Or some molecular compound could be absorbing energy and re-emitting it in the infrared band. That would eve explain why it’s all the same wavelength.

The shape of the arc is of particular interest. My first guess was that it is a collection of particles moving along magnetic field lines. But Venus has no magnetic field to speak of. No magnetosphere, no ionosphere, nothing. What forces would make particles arc towards it? And why would they glow?

Any suggestions or theories would be welcome.

From “Project Hail Mary” by Andy Weir, 2021, Ballantine Books, p10-11