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Can Japan's paper plane fly in space?

By Chris Hogg
BBC News, Tokyo

The Japanese have a reputation for single-mindedly pursuing the kind of scientific or engineering projects other countries are less inclined to see as a priority.

Japan is the country, after all, which has all but perfected the electronic toilet and yet still endeavours to better the design.

Professor Shinichi Suzuki of the University of Tokyo is the latest slightly eccentric pioneer.

His team is testing a paper aeroplane they want to launch from the International Space Station to glide back to earth.


The planes were subjected to tremendous force

Origami plane test

The plan is to ask a Japanese astronaut who will travel to the ISS later this year to throw about 100 of the planes into space.

Heat resistant

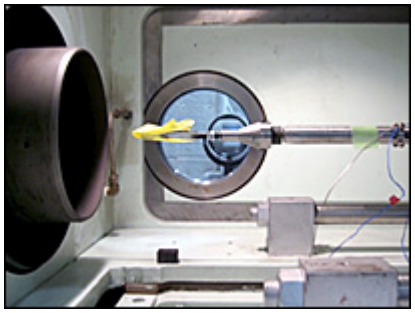
Professor Suzuki's team are working at a research laboratory at the University of Tokyo.

They are testing prototypes of a paper plane designed by the Japan Origami Airplane Association. The association approached the professor for help in getting their design into space.

The plane looks somewhat like the Space Shuttle.

The models tested in the laboratory's hypersonic wind tunnel are made of paper treated with a compound that increases its heat resistance.

Setting up the experiment takes some time. It is not easy to fix the prototype in place, and then to attach the wires which will measure the temperatures it is subjected to.


The plane has been touched up and is ready to go

So far the planes have resisted wind speeds of up to Mach 7, seven times the speed of sound. They have also endured temperatures of around 300 degrees Celsius.

Eventually, though, everything is ready. The team retreats upstairs to the control room and the experiment gets under way.

Not discouraged

Within a few seconds it is over.

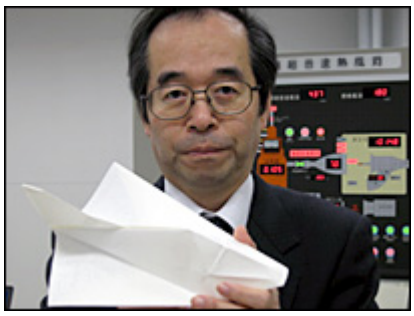
On a monitor the shockwaves can be seen bending back the front of the plane. After about six or seven seconds it can take no more.

The team are not discouraged, though. They are testing the plane to its limits. This experiment has subjected it to far stronger forces that it would face re-entering the earth's atmosphere.

Professor Suzuki says if he can persuade the US agency NASA and the Japanese space agency, JAXA, to allow Japan's next astronaut to release the planes, the project would help to inspire new designs for lightweight re-entry vehicles or craft that could explore the upper reaches of the earth's atmosphere.

"We think from this experiment we will be able to create new concepts and in the very near future perhaps new types of airship from this design," he says.

He hopes it will also inspire school children to take an interest in science.


The plane eventually used will be slightly larger, as shown

The planes being tested are about 8 cm long and weigh less than 30g.

As 70% of the earth's surface is water, the professor's team estimates that a plane thrown from the space station would have only a 4-5% chance of hitting land.

That is why they would want an astronaut to release around 100 of the planes.

The International Space Station is 400km above the earth's surface, and a successful flight would be the longest flight ever by a paper plane.

The team hopes that in future they might be able to develop a tracking device that can be fixed to the plane.

But in the meantime there is just a low-tech alternative - to write messages in various languages on the paper asking people to send it back to Japan if they find it.