

WIGOS SPACE 2040 WORKSHOP

**Developing a vision for space-based EO
in 2040**

**Access to space and evolution of space
activities**

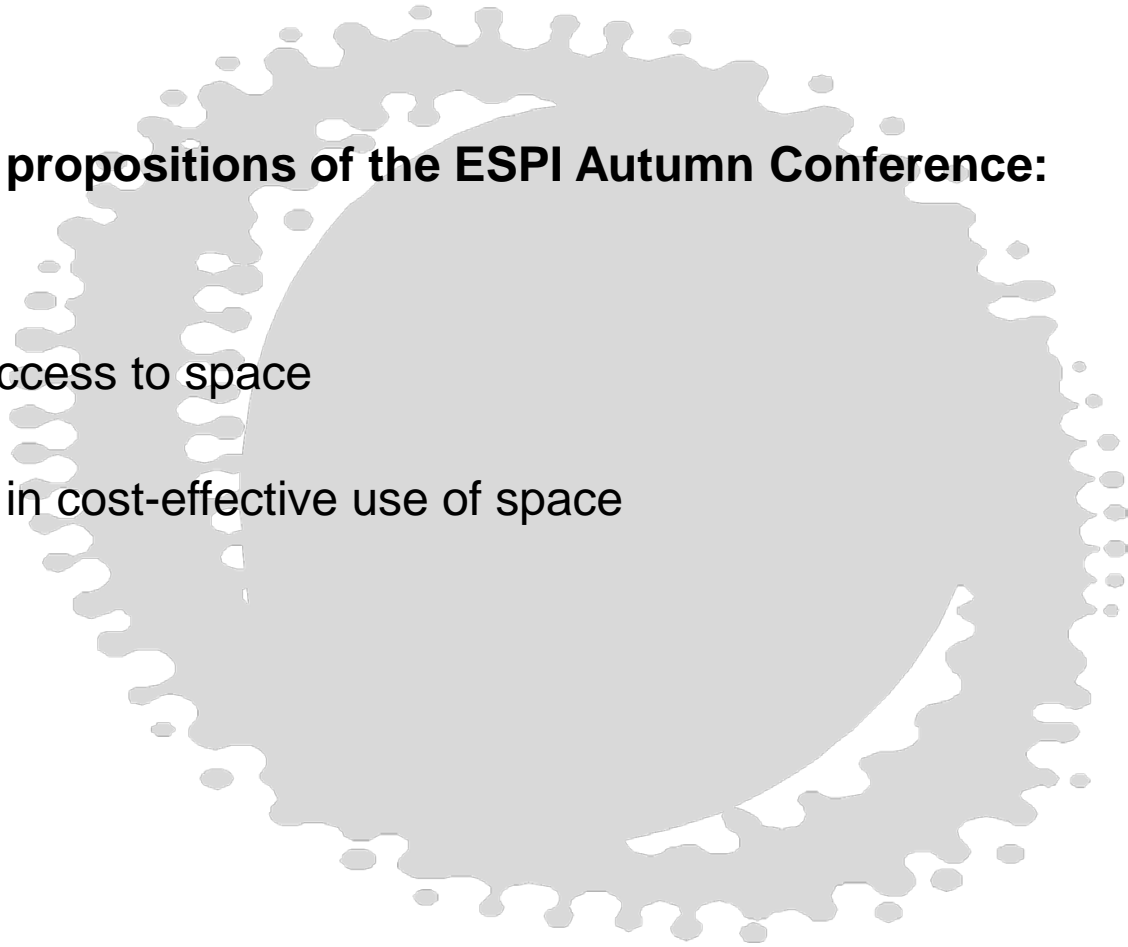
18 November 2015

Peter Hulsroj
ESPI Director

The basic propositions of the ESPI Autumn Conference:

Cheaper access to space

Innovation in cost-effective use of space



Exponential growth in innovation v. the long development cycles of space projects

Innovation and the significance of fast turn-around

Sustaining v. disruptive innovation

How high launch cost drives consequential cost increases – and how this drives conservative approaches and consensus solutions

Miniturisation v. the super-large

How small can it be?

How big can it be?

The role in space of:

Additive manufacturing (3-D printing)

Robotics

AI

The power of small:

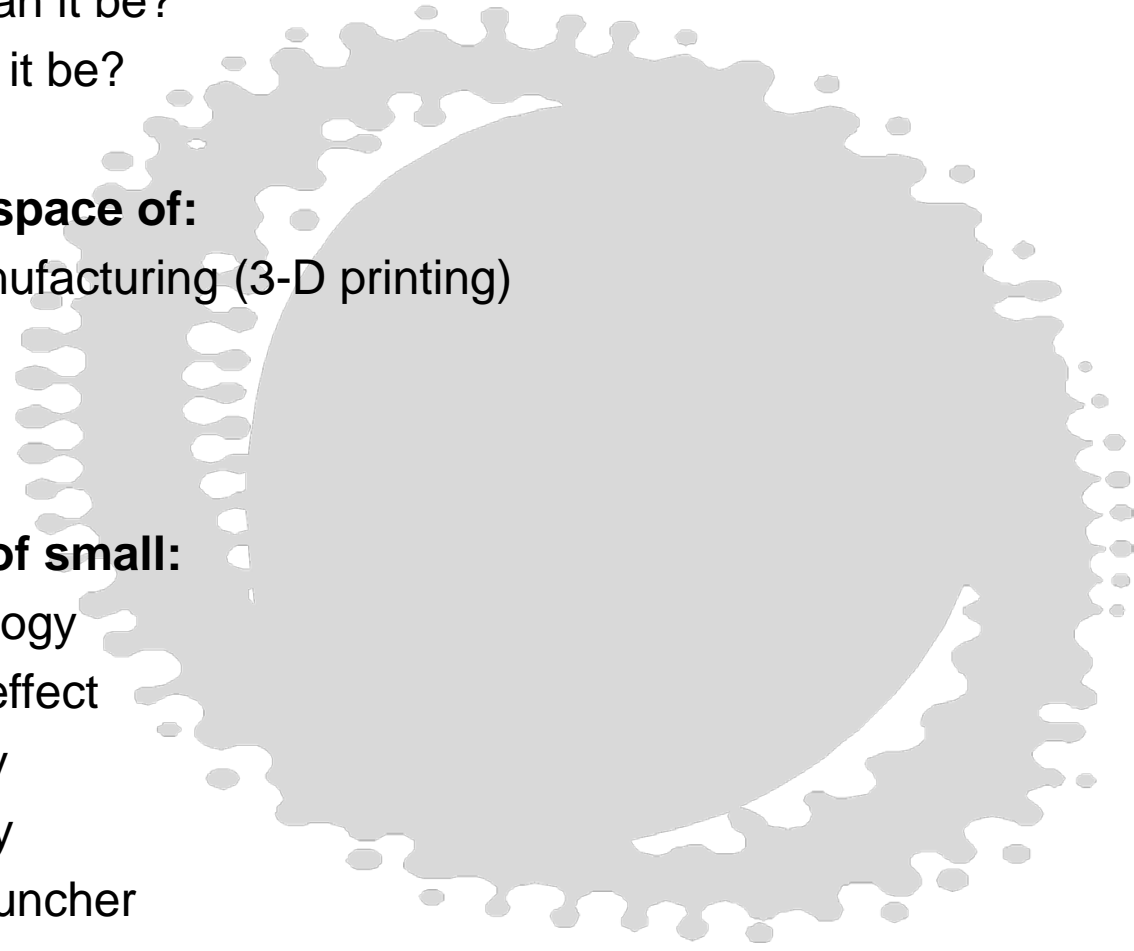
Nanotechnology

The swarm effect

The flexibility

The reliability

The small launcher

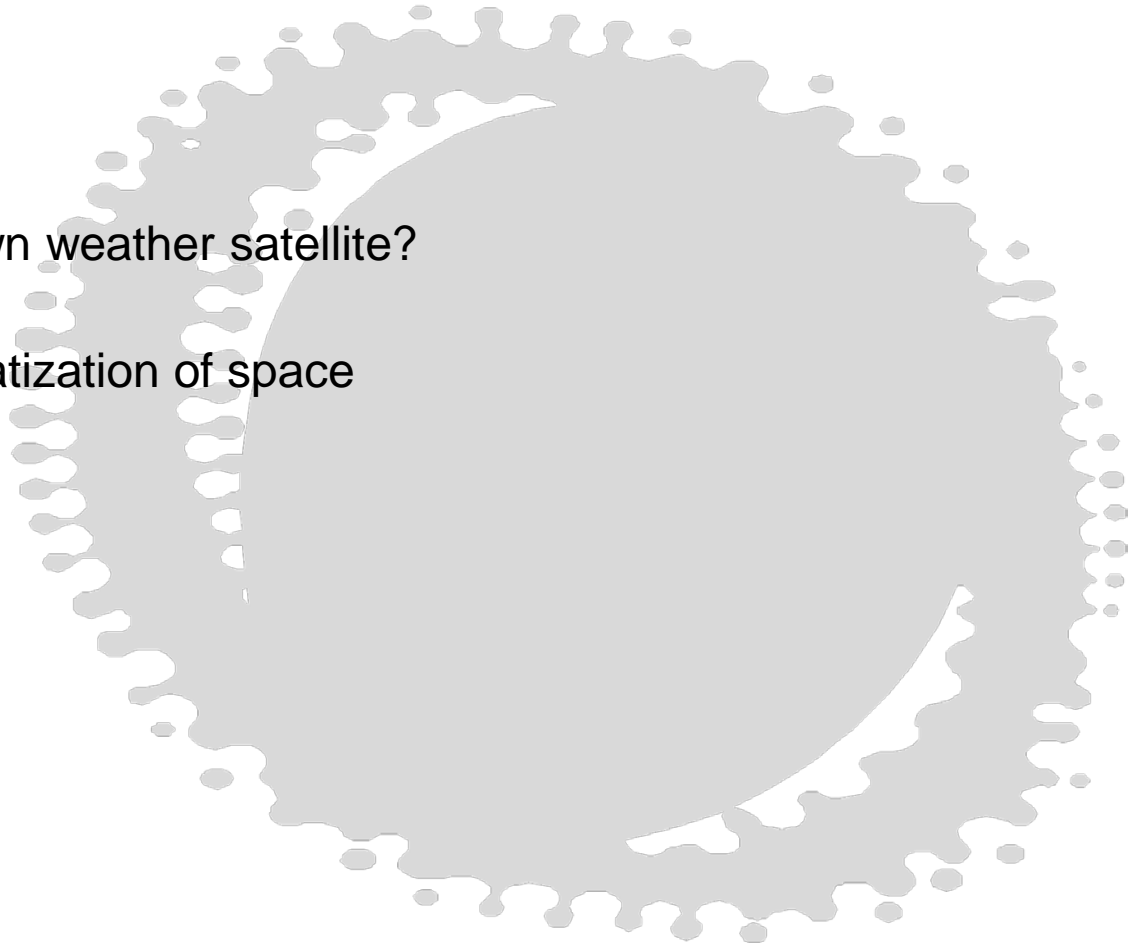


Drones - the new kid on the block



Own your own weather satellite?

The democratization of space



Opportunity and risk

Much more weather science and observation

Much robuster systems

Saville row fit, high street price

Micro management of emission sources

More difficult governance

The risk of lack of data quality control

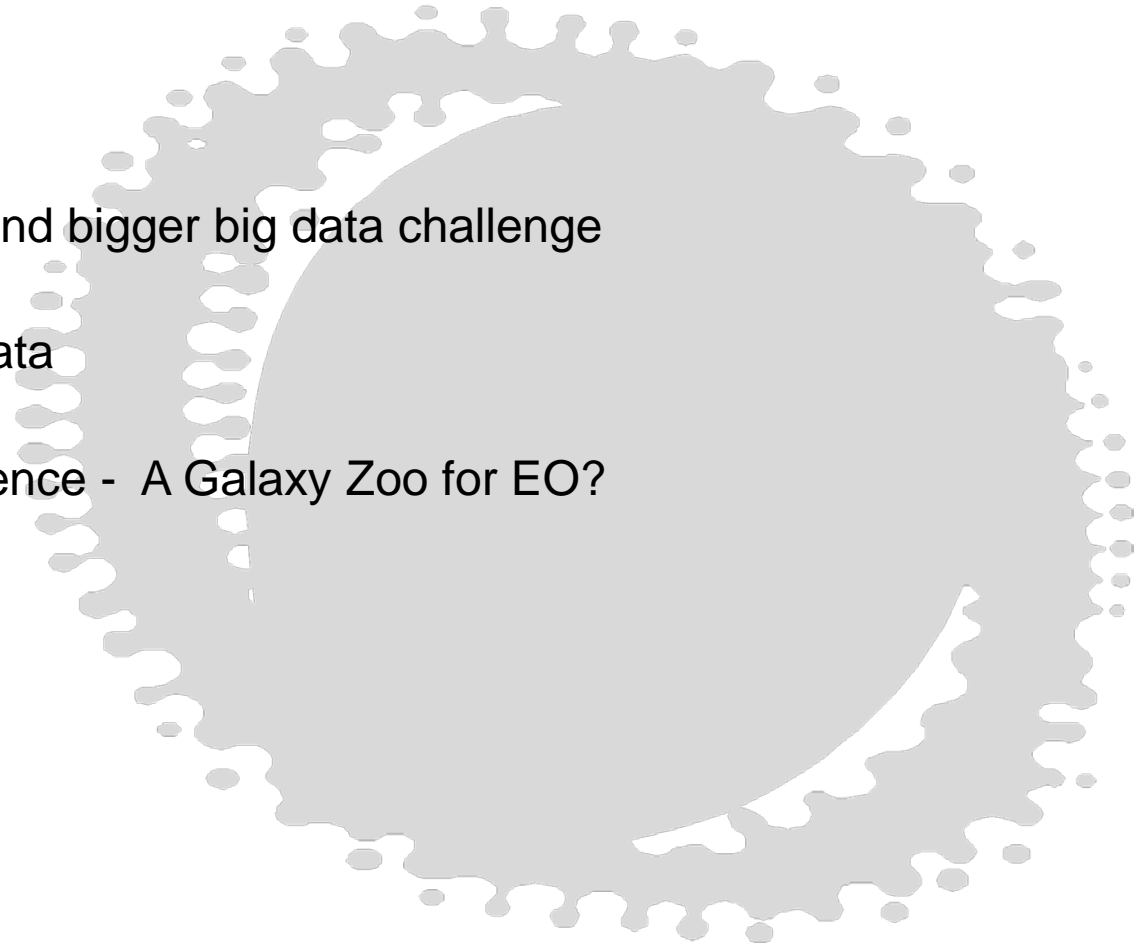
Debris

Frequency availability

The bigger and bigger big data challenge

AI and big data

Citizens' science - A Galaxy Zoo for EO?



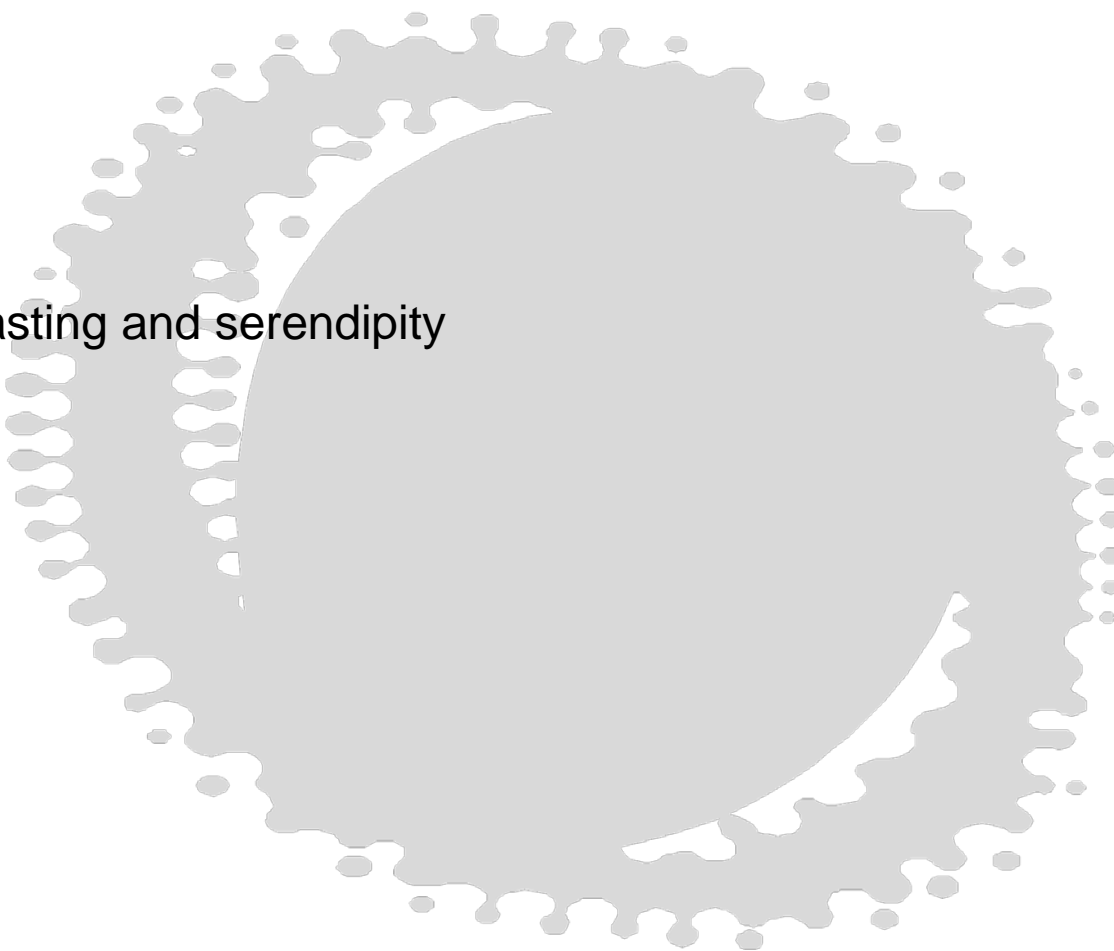


The risk and opportunity of active weather and climate management

Do we want to go there?

Can we avoid going there?

Can we avoid that someone goes there?



Future forecasting and serendipity