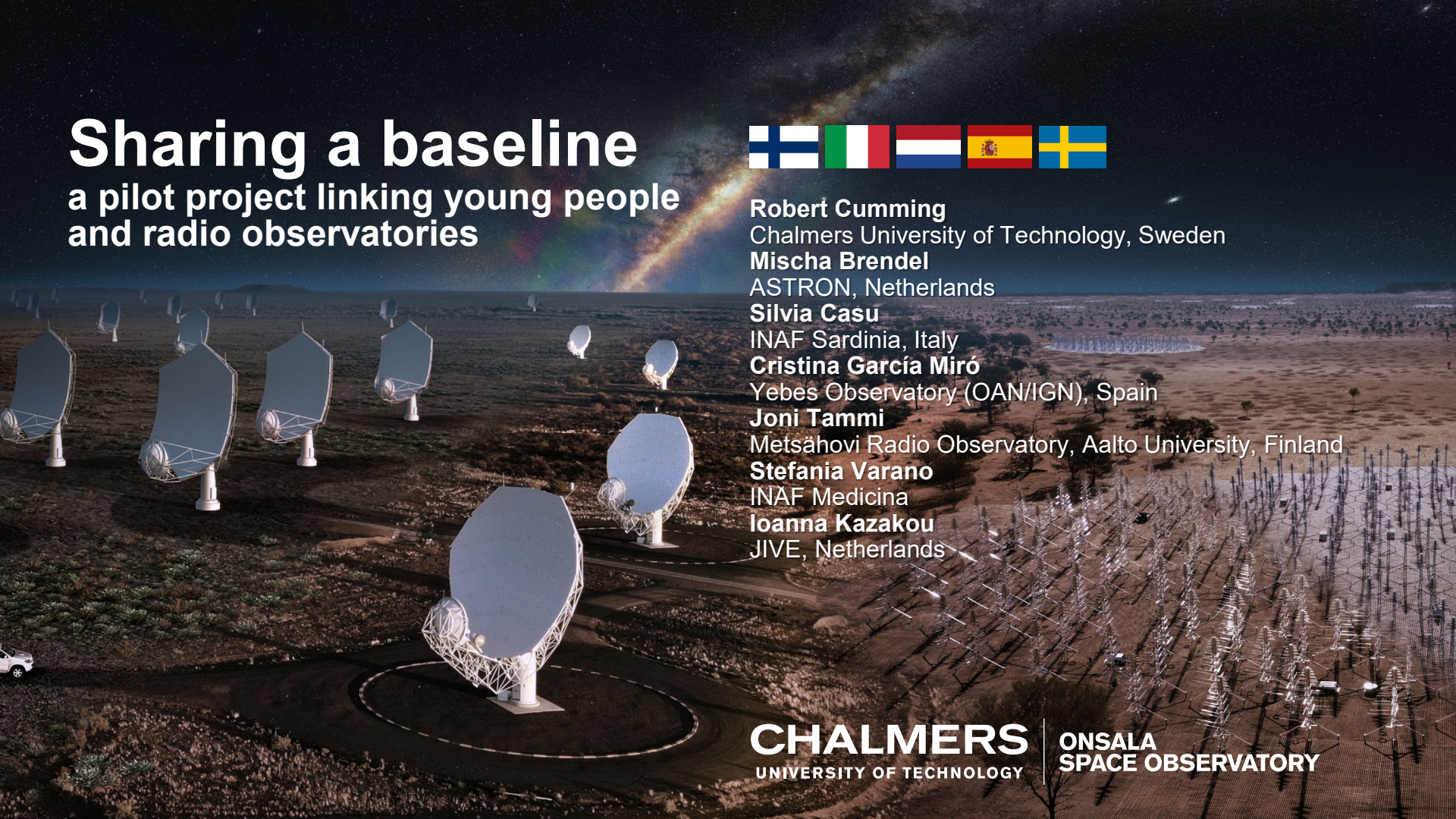
Sharing a baseline

a pilot project linking young people and radio observatories



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Cristina García Miró
Yebes Observatory (OAN/IGN), Spain
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CHALMERS UNIVERSITY OF TECHNOLOGY | ONSALA SPACE OBSERVATORY

Introduction, why and how

Opportunity

International projects with spectacular radio telescopes are exciting, but hard to visit.

The SKA offers new opportunities and new challenges.

Aim

To give kids *science capital,* and a taste of international science

Target group

School classes, ages 14-16

Pilot project

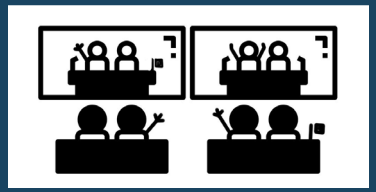
Learn by doing first – then extend to SKA countries. Start with smaller European observatories. Similar time zones. English as standard language.

Funding

5000 EUR from SKAO and IAU NOC funding scheme (plus 2500 EUR from JIVE)

Timeline

start in August 2023, activities Jan-June 2024, evaluation from Sep-Dec 2024



JIVE30
Joint Institute for VLBI ERIC

EUROPEAN VLBI NETWORK

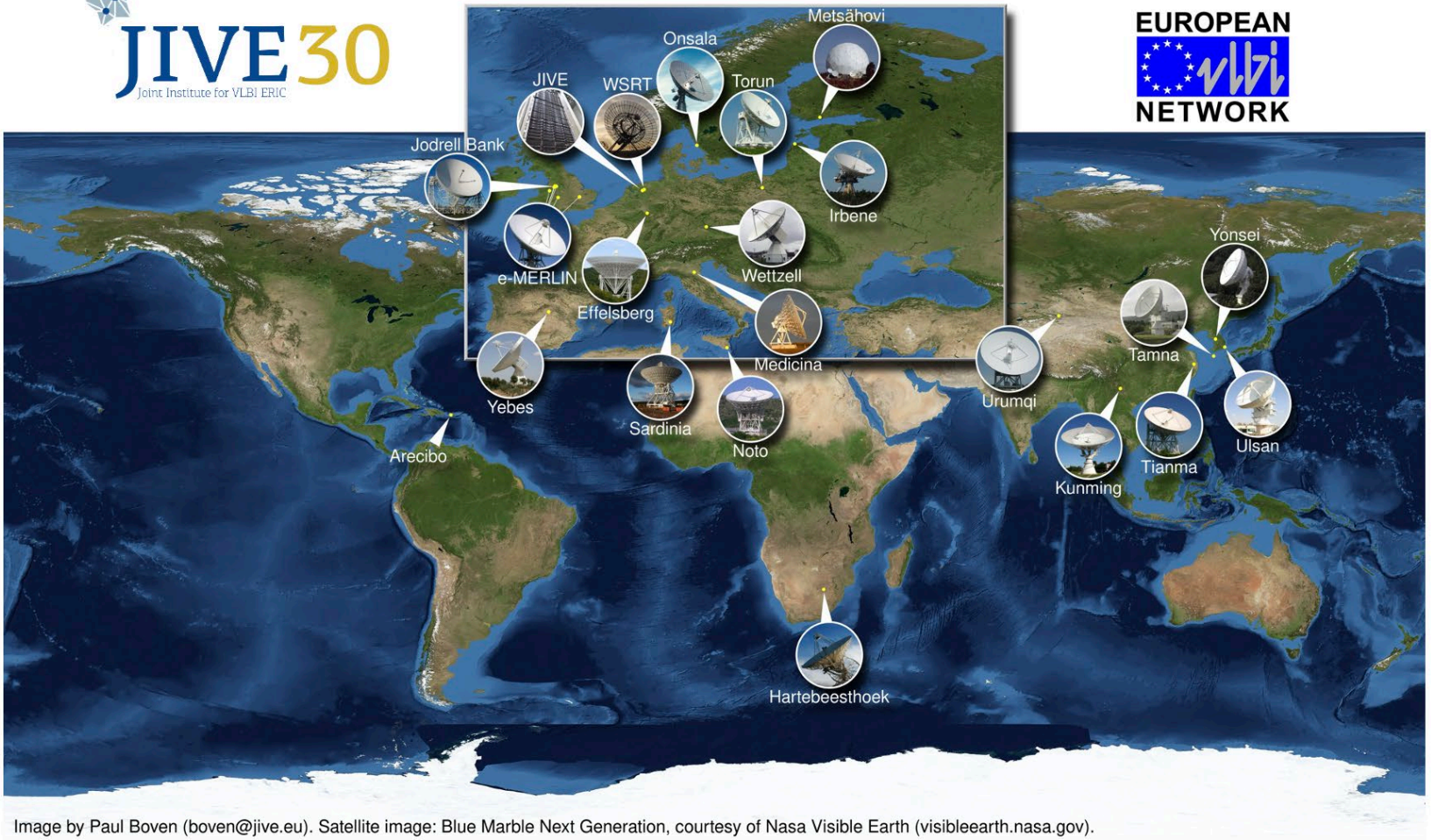


Image by Paul Boven (boven@jive.eu). Satellite image: Blue Marble Next Generation, courtesy of Nasa Visible Earth (visibleearth.nasa.gov).

VE30

e for VLBI ERIC

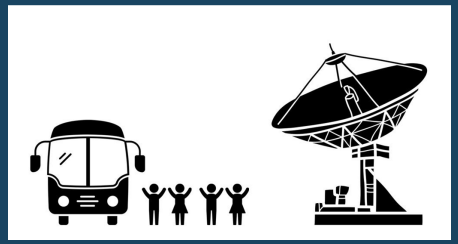
EURO

NETW

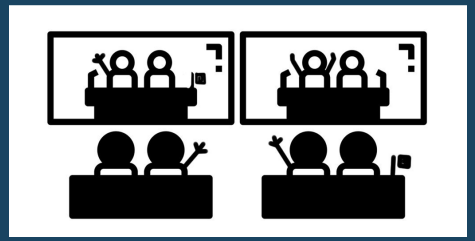
Paul Boven (boven@jive.eu). Satellite image: Blue Marble Next Generation, courtesy of NASA Visible Earth (visibleearth.nasa.gov).

Just three planned activities …

1. Scientist visits class



2. Class visits observatory



3. Classes connect digitally

Project work / presentations

Noun Project/glyph.faisalovers/Hey Rabbit/Azam Ishaq/David Khai/Cattaleya Thongsriphong

Netherlands / Dwingeloo
ASTRON / JIVE
Mischa Brendel

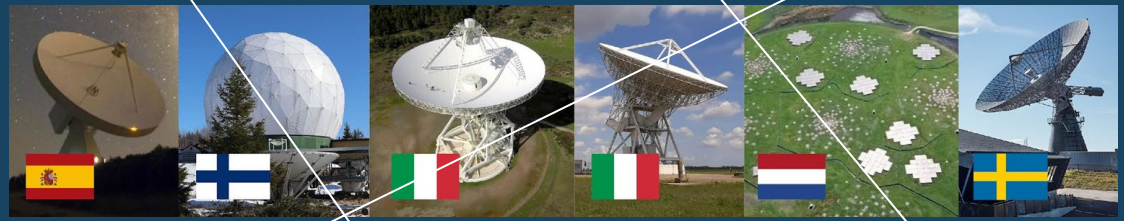
Wolfsbos school, Hoogeveen, 20 km
Preliminary visit to school 15 Jan
Scientist visit 20 March
Visit to ASTRON/JIVE 10 April
Visit to LOFAR & Geopark 15 April
Meetup with Sardinia 5 June

Sweden / Onsala
Chalmers
Robert Cumming

Sannaskolan, Gothenburg, 40 km
Observatory visit 19 March
Scientist visit 21 March
Astronaut event 9 April
Meetup with Italy 15 May

Finland / Metsähovi
Aalto university
Joni Tammi

Jokirinteen koulu, Kirkkonummi, 19 km
Scientist visit 8 Feb
Observatory visit 27 March
Meetup with Spain 16 April



Spain / Yebes
IGN
Cristina García Miró

IES Brianda de Mendoza. Guadalajara
Scientist visit 12 Jan
Observatory visit 18 Jan
Meetup with Finland 16 April
Trip to space facility 17 June

Italy / Sardinia
INAF
Silvia Casu

Liceo Euclide, Cagliari
Scientist visit April
Observatory sleepover late April
Meetup with Netherlands 5 June

Italy / Medicina
INAF
Stefania Varano

Liceo A. Volta, Lodi
Scientist visit 2 May,
Meetup with Sweden 15 May
Observatory visit ~~7 May~~, 18 September

IGN; Ira Matilainen/Aalto University; INAF; INAF/Paolo Soletta; ASTRON; Chalmers/Anna-Lena Lundqvist

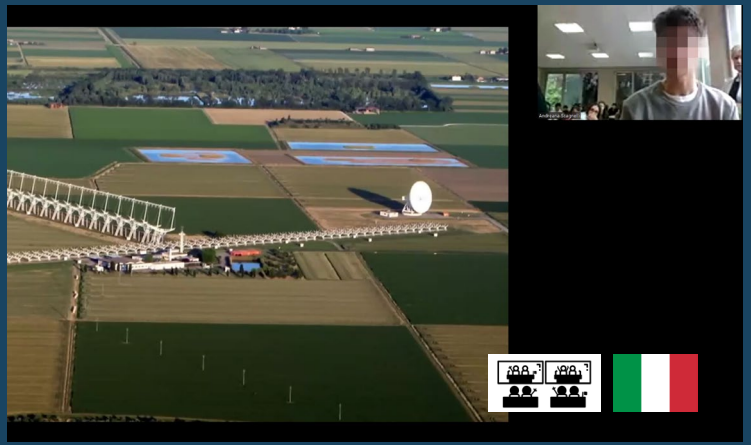
Aalto University/Joni Tammi; Yebes Observatory/Cristina García Miró

Chalmers/R. Cumming; ASTRON/M. Brendel; INAF/S. Casu

Aalto University; ASTRON/M. Brendel


Andreana Scagnelli


Robert Cumming




Annamaria Hjel...

Challenges

Team

For team members, it was a challenge to find the time

Recruiting classes

Contacting new people is hard; schools are very busy.

Education systems are surprisingly different.

Activities

Need clarity about what activities are required, expected and what value they have.

International coordination

How to pair up nodes? Scheduling was the best solution.

How and when to connect nodes? We left most connection work to the end

Can we all work in English? Language barriers were bigger than expected

Communication

Who else needs to know? Media, VIPs, branding, sponsors all seem promising

Aalto University/Joni Tammi; Yebes Observatory/Cristina García Miró

Feedback

Questionnaire for team, scientists and teachers

- 😁 Students got quality contact with science and scientists
- 😁 A few chose to pursue STEM as a result of the project
- 😁 The online meetups were a positive experience
- 🧐 It's worth preparing experiment exercises
- 😐 Schools end up doing fact-finding project work unless otherwise instructed
- 🤔 Online activity and documentation doesn't happen naturally

"It would be great and the project would be easy to participate in if the amount of extra work for the teacher would stay as small as possible." (teacher Finland)

"The joint activities between schools/countries need to be developed and designed way more beforehand." (team member Finland)

"I think a very good idea should be sharing the science results with all the countries instead of sharing them with only one country." (teacher Spain)

"[Better to work] one week instead of a couple of hours for several weeks." (teacher Netherlands)

Aalto University/Joni Tammi; Yebes Observatory/Cristina García Miró

Towards Sharing a baseline II

Successes
- **Classes and teachers enjoyed the project and are keen to do it again**
- We achieved a non-competitive balance between classes and countries
- We learnt from each other and shared material
- 14-15 year-olds are challenging and fun to work with

Room for improvement
- **Explore different ways of connecting classes digitally**
- Better official resources and descriptions
- Provide infrastructure for students to document and present their activities

Room for development
- Explore different age groups
- Integrate with existing programmes
- Co-create activities with subject matter experts in other fields
- More time for scientist-teacher interactions
- **Show students what they can do next**
- Explore potential for science diplomacy and communication interventions

Aalto University/Joni Tammi; Yebes Observatory/Cristina García Miró