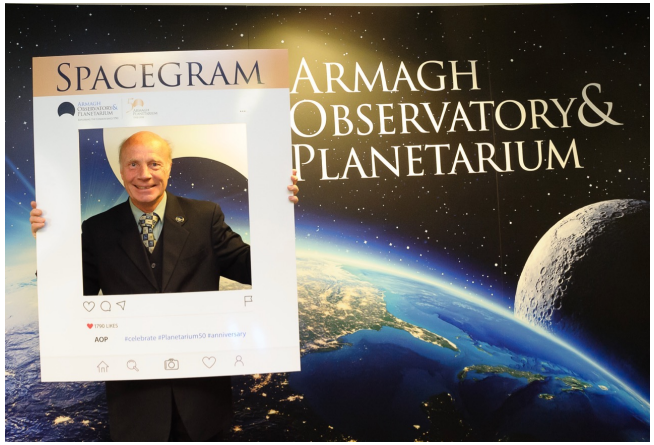
Rapporteur Talk: Outreach & Education

Michael Burton

Who am I?!



UNSW, Australia

Mopra

AAT

Armagh Observatory

and

Planetarium

Orion Nebula in the IR: Star Formation

Education and Outreach at the ICRC

- The first time at ICRC!
  - ICRC running since 1947
- 40 contributions
  - Warranted a rapporteur talk!

Recognition of the importance of education and outreach alongside research and the need to deliver messages to a range of audiences beyond our peers

What is Outreach?!

Themes for the O&E Contributions at ICRC2021:

1. Science Facilities
2. Science Funding Agencies
3. Science Experiments
4. Science Communication
5. Inspiration

Communicating a message outside your peer group.

May involve education, but not necessarily so.

Should you do Outreach?!

Yes…….

……. but its more than just giving a public talk!

Have a duty to explain what public money is being used for.
Can be fun, can be inspirational.

Needs to be delivered at the right level of language.

But what depends on the resources available to you / your organisation?

Why are you doing it?

“You” need to communicate a message beyond your peer group.

“You” = Me, Research Team, Institution/Facility, Funding Agency / Body

What kinds of Outreach & Education at ICRC?

Mode	Audience
Science Facilities [“telescopes”]	Users Scientists Visitors [inc. Virtual] Education: School visits Publicity
[Science] Funding Agencies	Justifying Investment Education: High School + Teachers Experiments: Students *[esp. virtual!]* E&O Workshops Tools
Science Experiments	Citizen Science [data collection] Zooniverse [data interpretation]
Science Communication	Scientists ⇔ Public
Inspiration	Society Tourism Sustainable Development

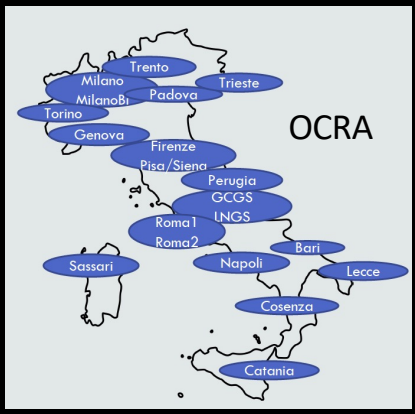
Experiment

CREDO Kaminski et al.

Inspiration

Astrophotography for O&E Lovenitti et al.

Funding Agency

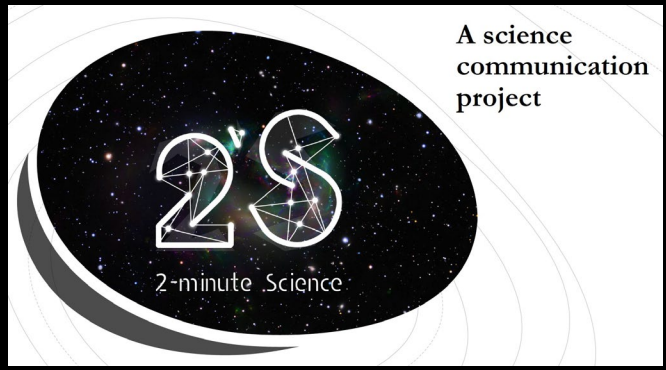


Cosmic Rays with OCRA Hemmer et al.

Facility

Fernández-Barral & Grunewald

Communication



2 minute Science Kantzas et al.

Who/What is your intended audience?
What are your goals / intentions?
Essential to know who your message is for!

- Other Physicists / Astronomers [*often we prepare for this audience….*]
- Other Scientists
- Other Academics
- Education:
  - P/G, U/G [Future Researchers]
  - High School [Curriculum driven; Physics; Top students?] – *can be resource intensive*
  - Primary School [Inspiration]
  - Teachers [Multiplier effect]
- The Public……
- Funding Bodies
- Stakeholders
- Politicians and their minders – National, Regional, Local

Some questions for consideration

- Needs to be pitched at the right level ("*not wrong*")
  - Researchers are rarely born communicators.
  - The detail is rarely needed!
  - Generally you should try and avoid bringing in your own research!
- For scientists / teams / institutions:
  - Do you need to collaborate / share resources to conduct your outreach?
- Be aware there are likely to be ulterior motives to your funders / backers
  - Directors avoiding budget cuts!
- Social media is likely to be an integral part
  - But not necessarily run by the scientist!
  - Opportunities as well as threats
  - Needs to be planned

Evaluation?!

Invited talk by Ricarda Ziegler – Impact & Evaluation in Science Communication

- We know we need to do it, but how?
  - Often a requirement of the funding.
- Trivial evaluation is easy but not particularly useful
  - e.g. Did you enjoy the activity, etc.?
- Deep evaluation is hard, if not impossible.
  - How to separate out the activity's contribution to the overall learning experience?
  - Post-activity interaction very useful to the practitioner but not quantifiable
- Issues:
  - Quantity, Quality, Professionalism in Science Communication
  - Seeking hard evidence not interpreting dodgy data!
  - Determining and measuring Impact.

Variety of evaluation