Communicating radio astronomy with the public

Another “point of view”

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4th Estrela Workshop
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Medicina (BO)

A longstanding tradition

Communication of scientific results and outreach activities have always been carried out by IRA.

Guided tou

The Visitor Centre “Marcello Ceccarelli”

Outreach activities at the VC

- Lectures and guided tours for schools during the week (2 days)

- Opening for the general public on week ends (with or without the guided tour)

Wednesday and Friday	9:00 – 12:30	Schools
Saturday	15-19	General public (with reservation)
Sunday	15-19	General public

Our goal

IN GENERAL

- communicate the "scientific way of thinking" and the tentative nature of this (and any) research activity

- show the necessity and effectiveness of a world-wide collaboration

Our goal

IN PARTICULAR

- convey the difficulties in this kind of observation (e.g. resolution, electromagnetic pollution)

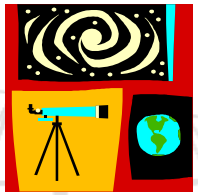
- answer basic questions about what radio telescopes are and how they work

AND...

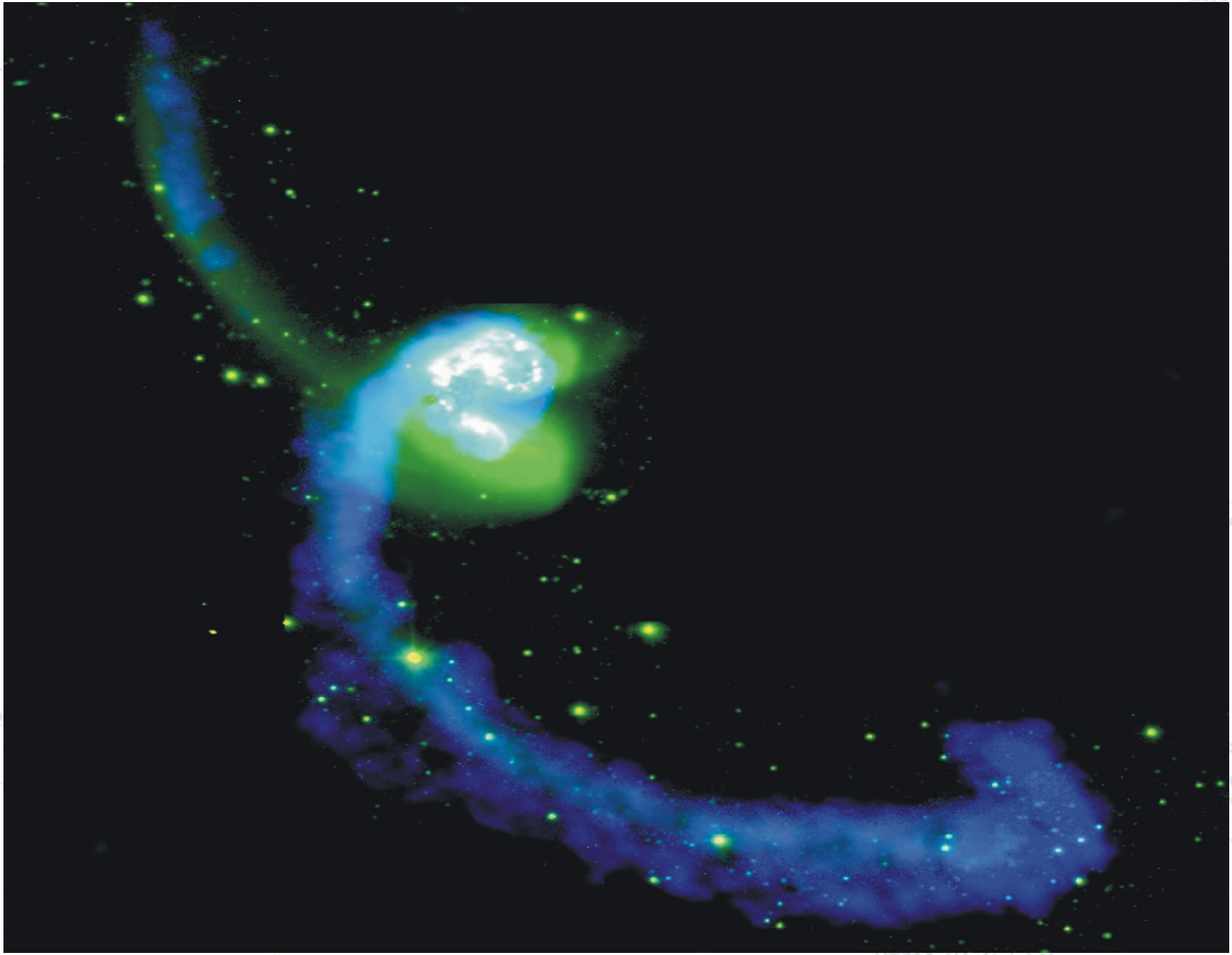
- tell how we can study something that we can not see with our eyes

The “wrong” wavelength
(with respect to our senses)

When it comes to radio astronomy,
the way of “observing” the sky is
a new concept in itself.



Involving the public in this different way
of studying the Universe is already
a good achievement



Showing the invisible

What is a star? (...)

What are radio waves?

Presenting invisible radiation to a general audience with little or no background in physics can be a difficult task

Can I look at the stars with this telescope?

The radio telescopes: a discovery by themselves

The guided tour ends at the antenna site(s).

This turns out to be the actual discovery.

Our guests

- Students (from primary up to high schools)

- General public (organized groups, amateur astronomers, radio amateurs, occasional visitors)

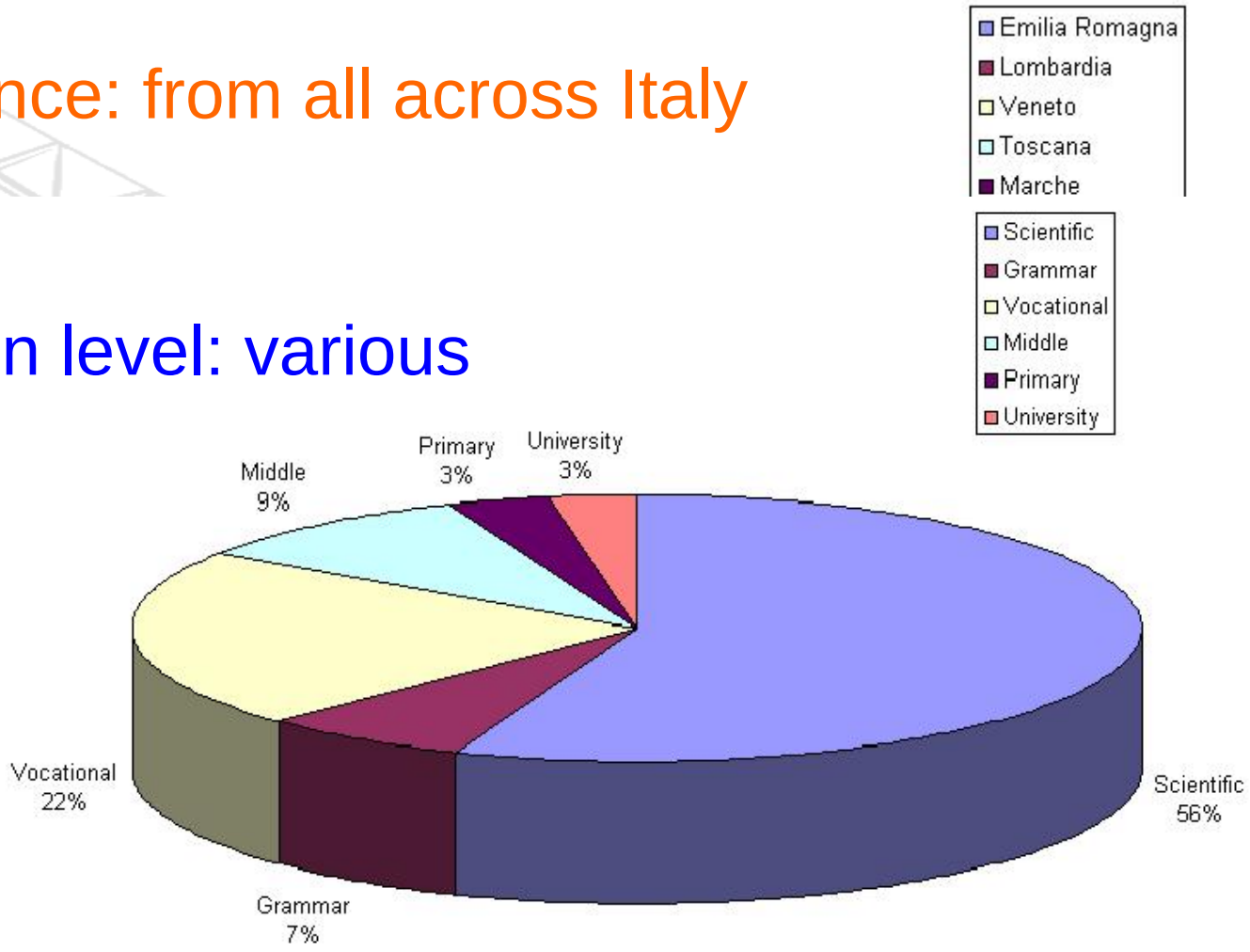
- Children (both from schools and other contexts, both organized groups and occasional young visitors)

Schools (1)

- Provenance: from all across Italy

- Education level: various

- Total: a



Schools (2)

For high school students:

explain the electromagnetic spectrum, introduce radio astronomy through lectures about:

-emission processes

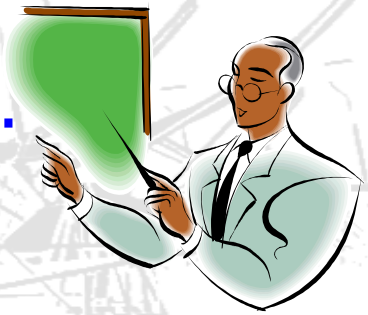
-image processing

-physical phenomena observed at radio wavelengths (radio emission from galaxies, rotation curves, HI line, pulsars, quasars, black holes, etc.)

Schools (3)

We ask for the collaboration of teachers coming with their schools at our Visitor Centre, for the preparation of "teaching projects" (with laboratories, etc...) to be developed with students before or right after the visit at the radio telescopes

Not only…



General public (1)

- Organized groups (general, amateur astronomers, radio amateurs...)

-Occasional visitors (on Sundays)

-Total: approx 1500 visitors/year

General public (2)

Way of acting:

engage them by means of narration, try to make them aware of the existence of this relatively young science:

- recalls to daily experience (metaphors -!-, use of radio waves for communication, …)

-history of radio astronomy and first revolutionary discoveries (CMB, pulsars, quasars, …)

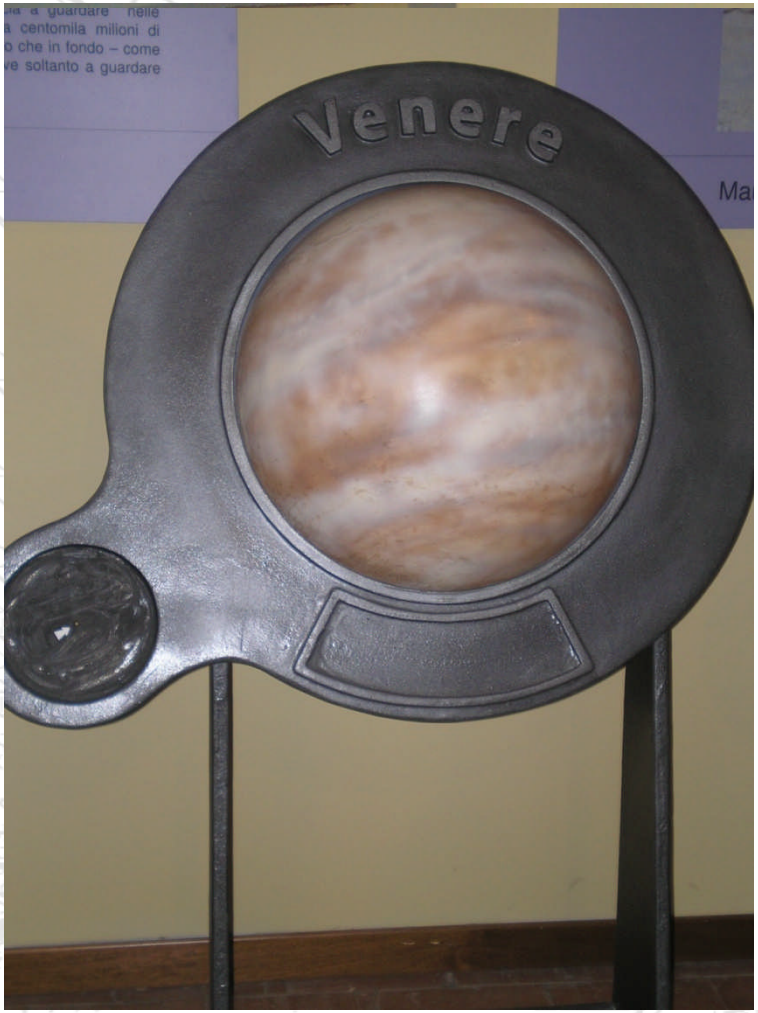
-the "human side" of the story (anecdotes, new challenges, …)

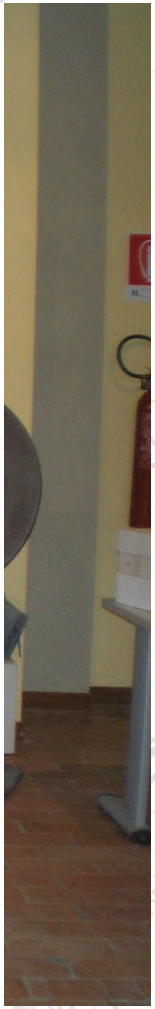
We are doing astronomy...

We combine the optical astronomical exhibitions with some of our exhibits and panels on the “radio aspect” of the proposed subject.

The radio aspect

Scale model of the Solar System





Children (1)

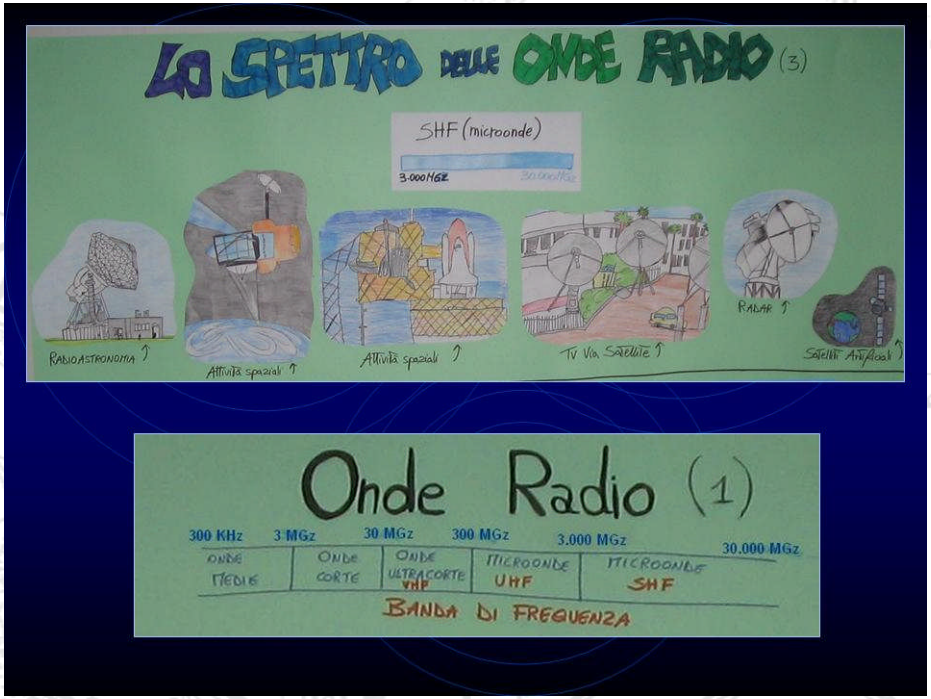
Way of acting: make them "try" themselves through dedicated activities:

- *Hands-on exper*
with "La città
difference betwee
the connection
wavelength)

- *Interactive exhibi*

Children (2)

For experiments and activities we take advantage of the work done by some teachers and educators in their primary school classes (e.g. a primary school in Torino) who came with their pupils at our Visitor Centre.

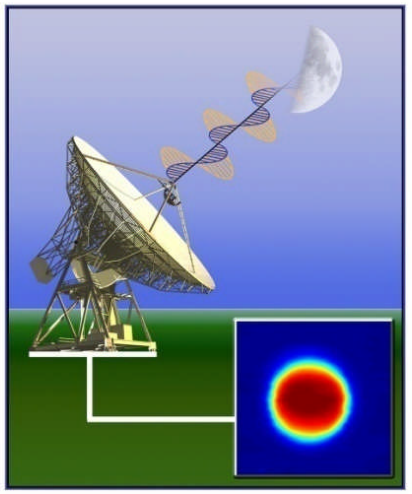


Projects in progress

UAI – Unione Astrofili Italiani
Sezione di Ricerca Radioastronomia UAI
IARA - Italian Amateur Radio Astronomy Group

In collaborazione con
INAF-IRA Istituto di Radioastronomia
Centro Visite "M.Ceccarelli"

2° Corso di Didattica della Radioastronomia



La Luna radio

Determinazione della temperatura del suolo lunare che irradia alla frequenza di 8 GHz, produzione di una mappa radio della Luna

Radiotelescopi di Medicina
15 aprile – 13 maggio 2008

Projects in progress

Activities for the International Year of Astronomy in 2009 (in collaboration with other institutions).

- *Exhibition in Piazza Maggiore*
- *Radio-echo observation of the Moon with the 32-m antenna*
- *School projects*
  - *teachers*
  - *students*
  - *Congress and fair for Hobby radio astronomers*
  - *Public conferences*

Critical issues

Projects and activities for an effective communication of radio astronomy with the public need to be carefully studied, tested, improved.

IRA-INAF is the only Italian Institute performing front-line research in radio astronomy and operating a Visitor Centre for radio telescopes.

Need for cooperation

We are trying to create a working group of people engaged in communicating and popularising radio astronomy directly with the public.

During the last years we have been collaborating with Effelsberg, Jodrell Bank, Dwingeloo, Onsala, Yebes, Nancay for setting up a network of VCs at European radio observatories.