

Public Outreach

Why are we doing this?

...

Public outreach for HESPE

...

The future

...



Science and technology for dissemination of the heliophysics world

High Energy Solar Physics in Europe HESPE

Final meeting, Genova, October 28-30 2013

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Experts warn of the big chaos

Xy - Scientists expect strong solar eruptions in May 2013.

Worst case scenarios include catastrophs on an unprecedented scale.



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Comments from readers on the article in 20 Minutes (free newspaper),
December 13, 2011

Hystery!

Once again, nothing will happen at
all!

Again?

Didn't we just have such an
incredibly destructive solar
eruption that brings us all into an
outrageous chaos ...

Incredible!

Hey people, that's a SCIENTIST
talking!



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Why do public outreach?

Reasons from the perspectives of

Economy

Politics

Society



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Why do public outreach?

Reasons from the perspectives of

Economy: next generation of scientists and engineers

Politics

Society



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Why do public outreach?

Reasons from the perspectives of
Economy

Politics: democracy, informed decision making

Society



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Why do public outreach?

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Economy

Politics

Society: everyone should participate in technological world



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Society

Science community: give something back to tax payers



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Why project-based public outreach?

Proximity to the daily praxis in science



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Public Outreach between science education and public relations

| Formal Education | Informal Education | Public Outreach | Media Relations | Branding/PR |
|---|---|---|--|---|
| <ul style="list-style-type: none"> •Teaching materials •Online learning •School labs •Career information •University courses •Teacher training •Social Media | <ul style="list-style-type: none"> •Planetaria •Science Centres •Observatories •Amateur clubs •After school classes •Citizen Science •Social Media | <ul style="list-style-type: none"> •Websites •Science Festivals •Science Cafes •Open door days •Exhibitions •Talks •Movies •TV/Radio •Journals, books •Social Media | <ul style="list-style-type: none"> •Websites •Press kits •Press conferences •Interviews •Social Media | <ul style="list-style-type: none"> •Corporate design •Brochures •Posters •Newsletters •Give aways •Social Media |



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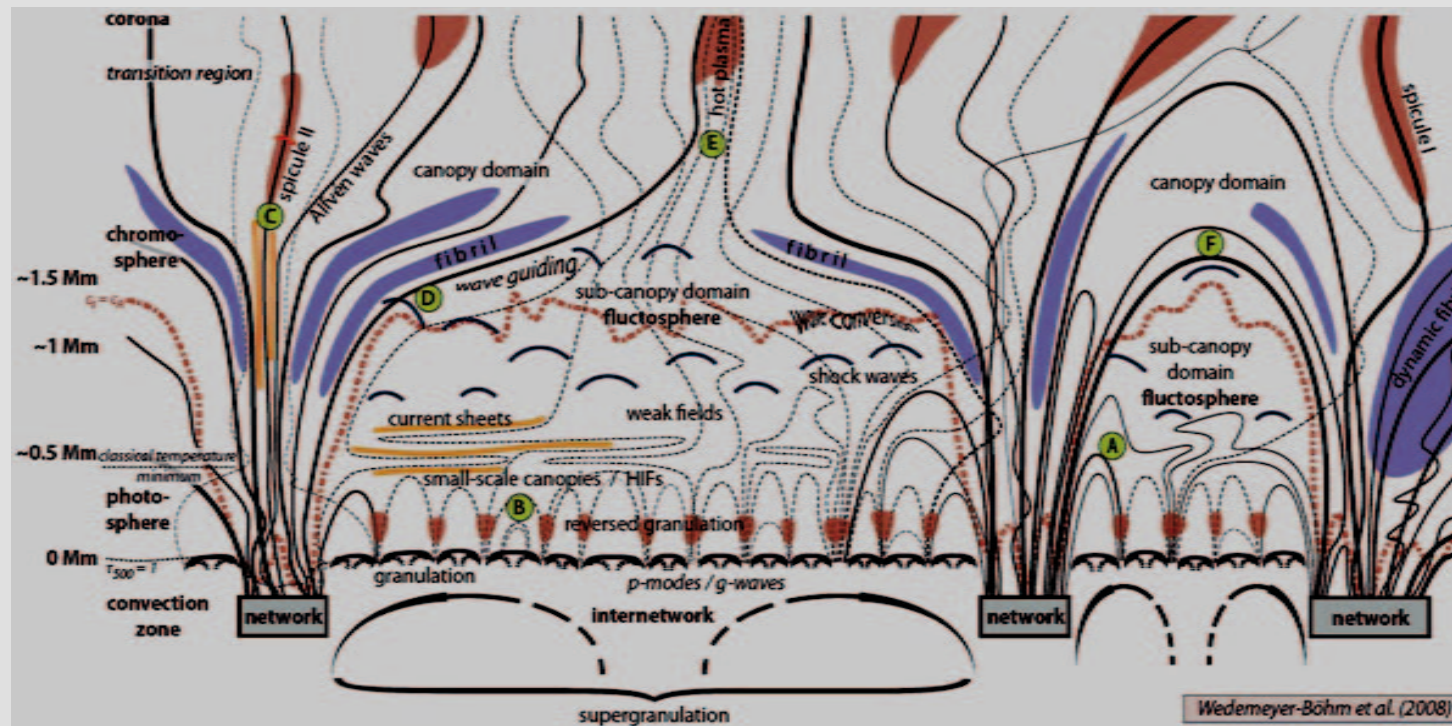
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Public Outreach for HESPE

Isn't high energy solar physics too complicated for the public?



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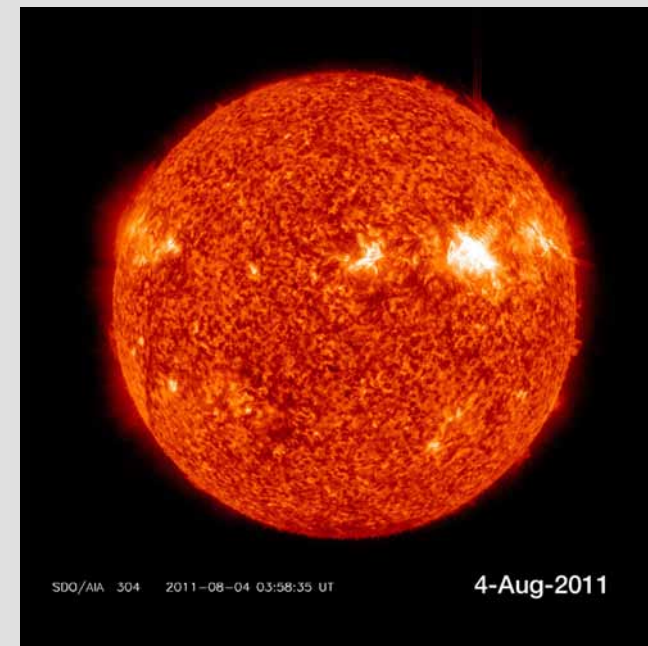
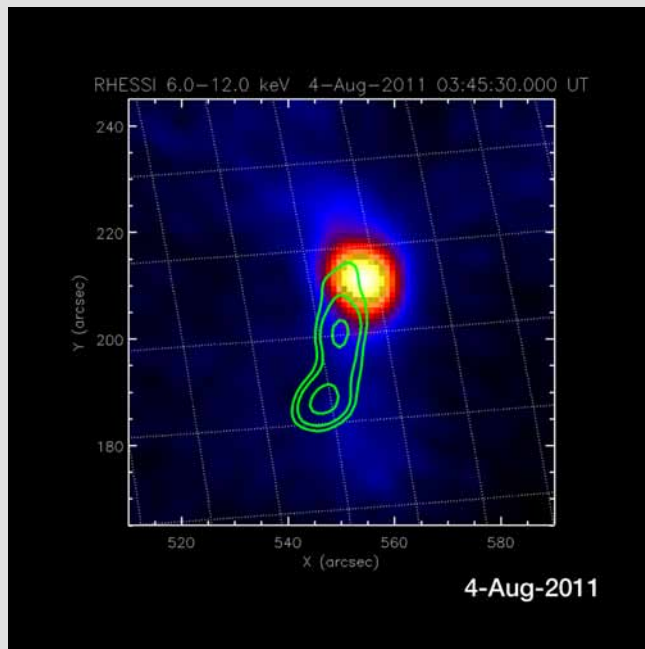
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Wouldn't it be easier to communicate missions like SDO?



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Public Outreach for HESPE

Europe: diverse languages and cultures of science communication



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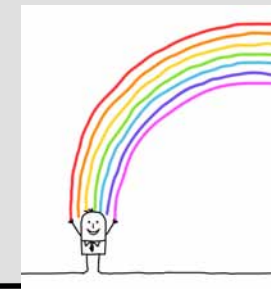
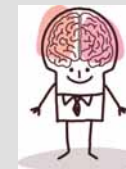
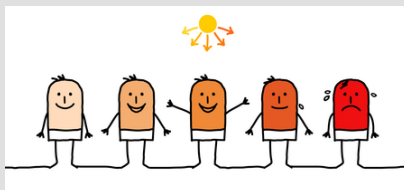
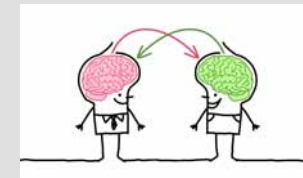
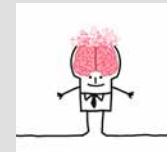
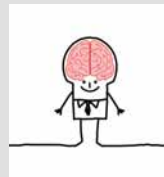
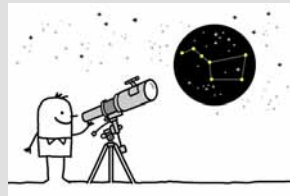
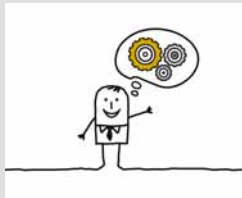
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The public!



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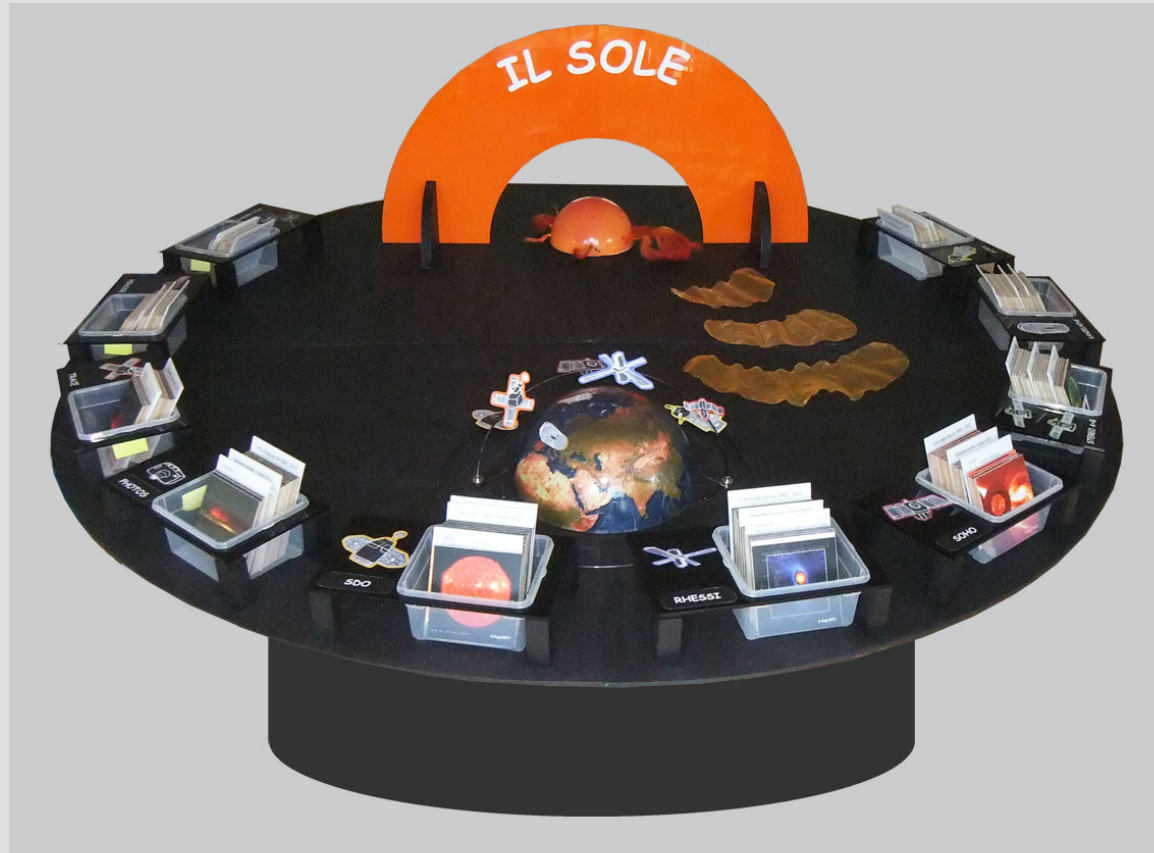
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Science on a Table

a hands-on exhibit unit for facilitating the dialogue
between visitors and scientists at public events



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Public Outreach for HESPE

the strategy of **Science on a Table**

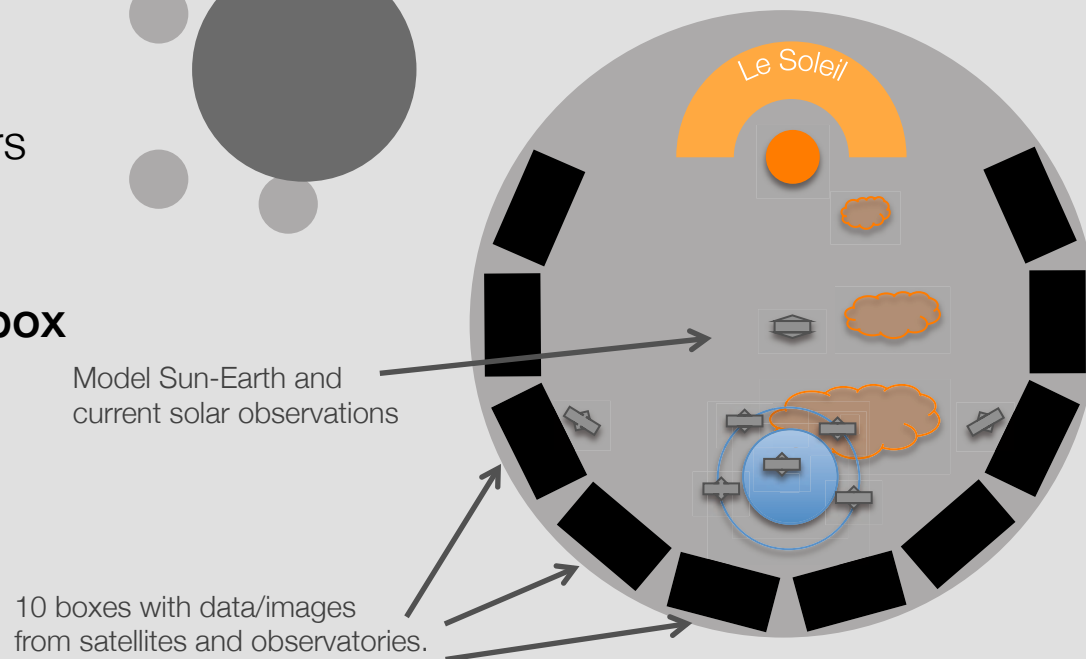
provide an intelligible **context**

create **hooks** for diverse visitors

use a minimum of written **text**

design the materials to fit in a **box**

'dialogue tables'



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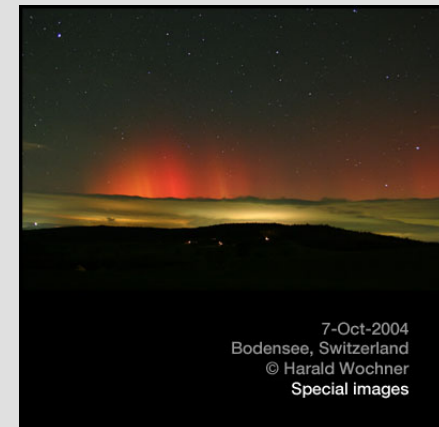
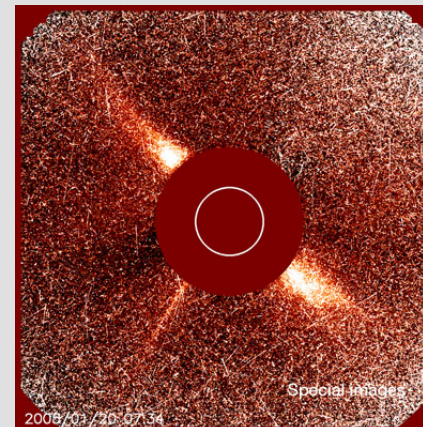
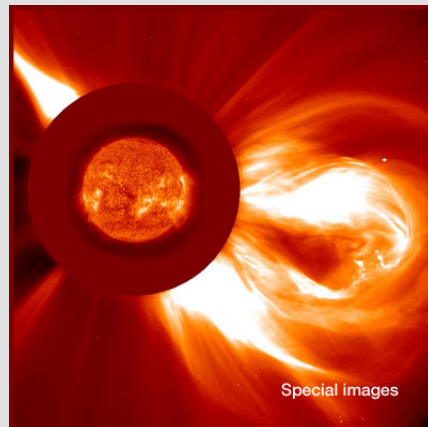
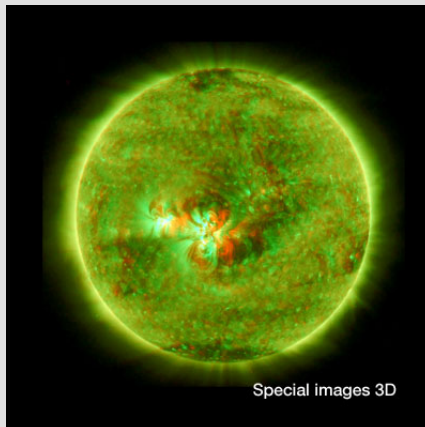
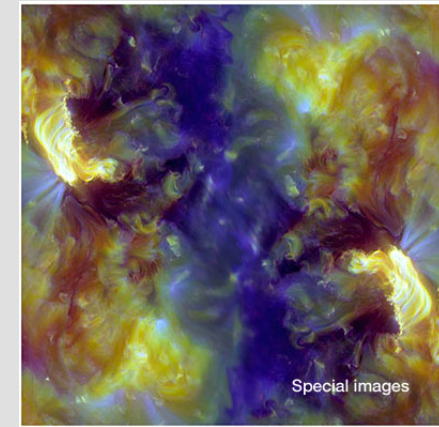
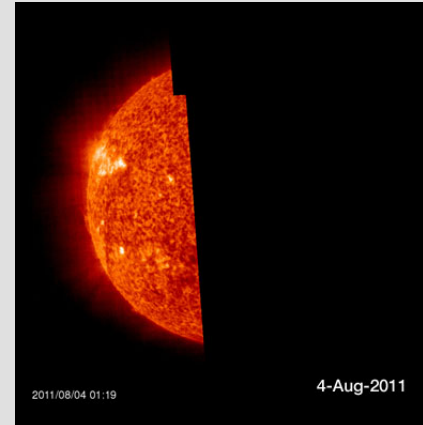
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Science on a Table – what is in the boxes?

1. Images with a narrative quality provoking curiosity
> Hooks for visitors with diverse backgrounds and ages.



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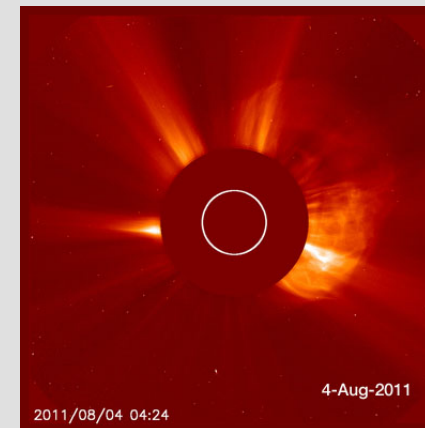
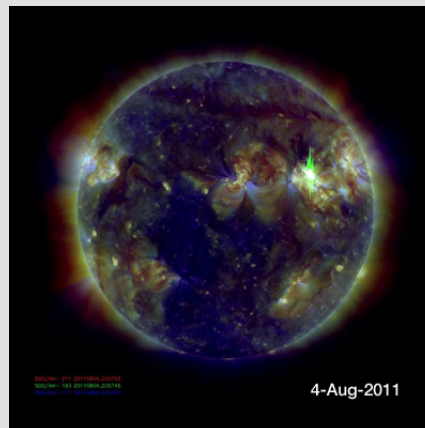
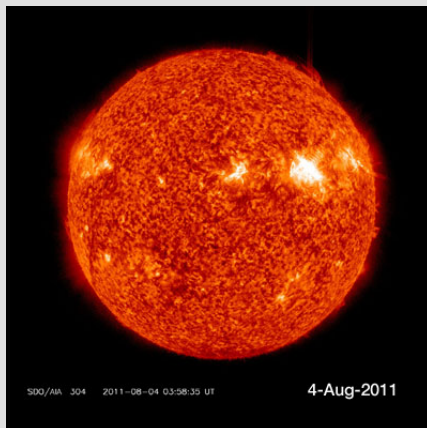
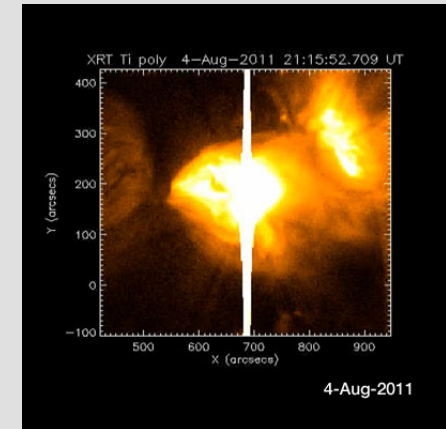
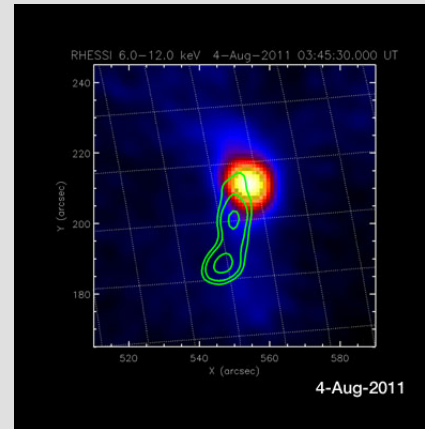
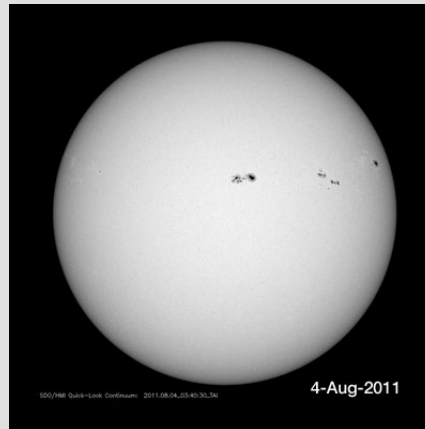
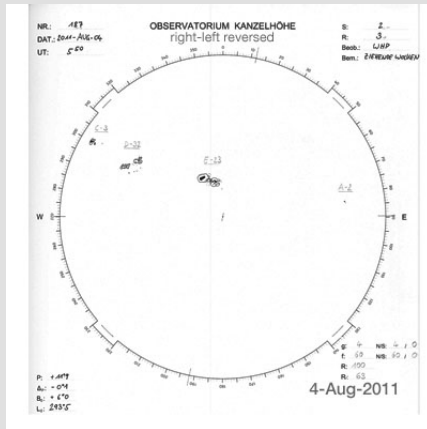
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Science on a Table – what is in the boxes?

2. A solar event traced over all instruments represented on the table.
> Context for the ‘difficult-to-communicate’ RHESSI data



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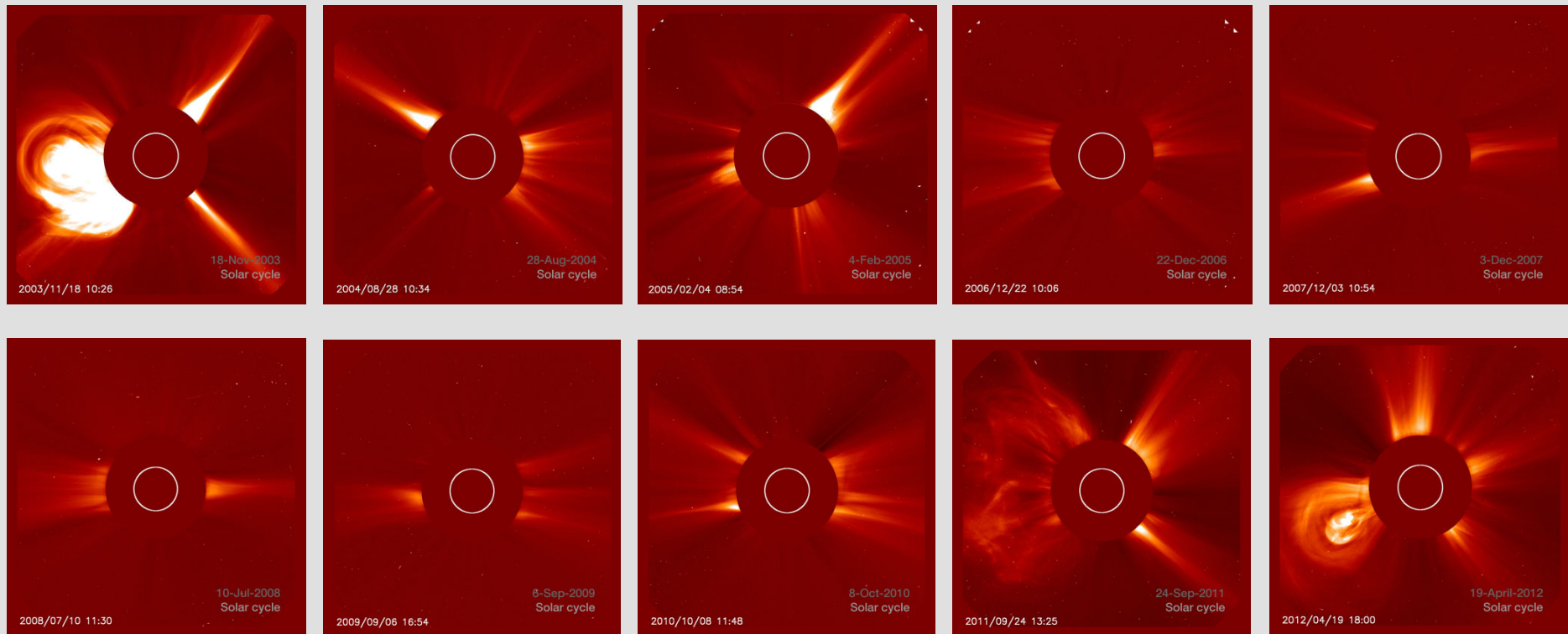
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Science on a Table – what is in the boxes?

3. One image per year - the eleven year solar cycle > Observing data



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Public Outreach for HESPE

Science on a Table at EU- Open Doors
in Brussels, May 2013

It works!



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Intense dialogues!



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Tired ...

Scientist with deflated plush-Sun →



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‘Science on a Table’ in the spectrum of science communication

| Formal Education | Informal Education | Public Outreach | Media Relations | Branding/PR |
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Public Outreach for HESPE

A modular approach to public outreach

Goal

A solar science outreach program
for communicating a variety of research projects
in diverse situations and beyond the duration of a single project.

Method

Co-funding: each research project contributes a part.
This allows for even smaller research projects to participate in public outreach.

Advantage

New developments in science communication can be incorporated.
Constant improvements and adaptations are possible.
Updating of the existing materials is guaranteed.

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The future

Paradigm shift

from public understanding of science to

> public engagement with science

> public participation in science



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The future

Public engagement with science

Citizen councils discussing controversial issues

- nanotechnology
- health-related sciences
- genetic engineering



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The future

Public participation in science

Citizen science projects

- e.g. zooniverse.org
- observations related to climate change



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Citizen science projects by zooniverse.org

Space

Sort by Category



How do galaxies form?
NASA's Hubble Space Telescope archive provides hundreds of thousands of galaxy images.

GALAXY ZOO



Explore the surface of the Moon
We hope to study the lunar surface in unprecedented detail.

MOON ZOO



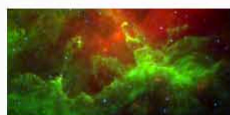
Study explosions on the Sun
Explore interactive diagrams to learn about the Sun and the spacecraft monitoring it.

SOLAR STORMWATCH



Find planets around stars
Lightcurve changes from the Kepler spacecraft can indicate transiting planets.

planethunters.org



How do stars form?
We're asking you to help us find and draw circles on infrared image data from the Spitzer Space Telescope.

THE MILKY WAY PROJECT



We're on a collision course with Andromeda
Help researchers understand the awesomeness of the Andromeda galaxy, because one day we'll be in it...

THE ANDROMEDA PROJECT



Explore the Red Planet
Planetary scientists need your help to discover what the weather is like on Mars.

PLANET FOUR



Help us find gravitational lenses
Imagine a galaxy, behind another galaxy. Think you won't see it? Think again.

SPACEWARPS

Nature



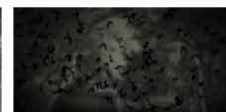
Hear Whales communicate
You can help marine researchers understand what whales are saying

WHALES



Help explore the ocean floor
The HabCam team and the Woods Hole Oceanographic Institution need your help!

SEAFLOOR EXPLORER



You're hot on the trail of bats!
Help scientists characterise bat calls recorded by citizen scientists.

BAT DETECTIVE



Go wild in the Serengeti!
We need your help to classify all the different animals caught in millions of camera trap images.

SNAPSHOT SERENGETI



Take Notes from Nature
Transcribe museum records to take notes from nature, contribute to science.

Notes from Nature



No plankton means no life in the ocean
Plankton are a critically important food source for our oceans.

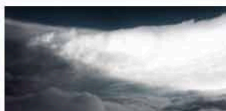
PLANKTON PORTAL

Climate



Model Earth's climate using historic ship logs
Help scientists recover Arctic and worldwide weather observations made by US Navy and Coast Guard ships.

oldWeather



Classify over 30 years of tropical cyclone data.
Scientists at NOAA's National Climatic Data Center need your help.

CycloneCenter



Study the lives of ancient Greeks
The data gathered by Ancient Lives helps scholars study the Oxyrhynchus collection.

ANCIENT LIVES

Biology



Analyse real life cancer data.
You can help scientists from the world's largest cancer research institution find cures for cancer.

Cell Slider



Track genetic mysteries
We can better understand how our genes work by spotting the worms laying eggs.

WORM WATCH LAB

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The future

A new generation of astronomy amateurs

use online resources in their own way

- (J)Helioviewer movie making
- online space weather observation
- images for creative projects



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The future

Open access to data for the public

- example NASA
- US government shutdown
- More suitable data products for the public

Efforts behind the scene are necessary



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