

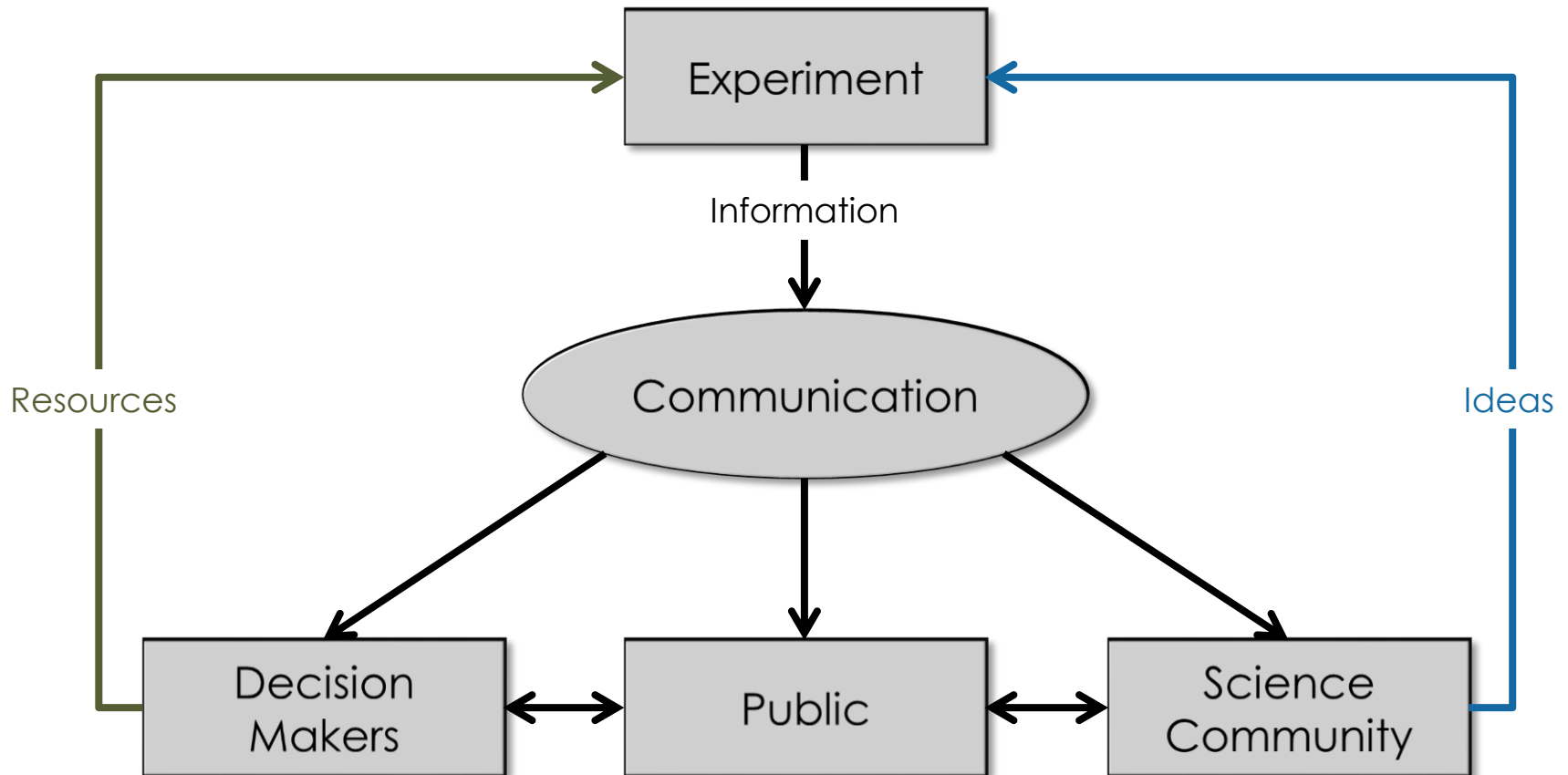
Virtual Visits

Bringing the World to CERN

Communicating Science

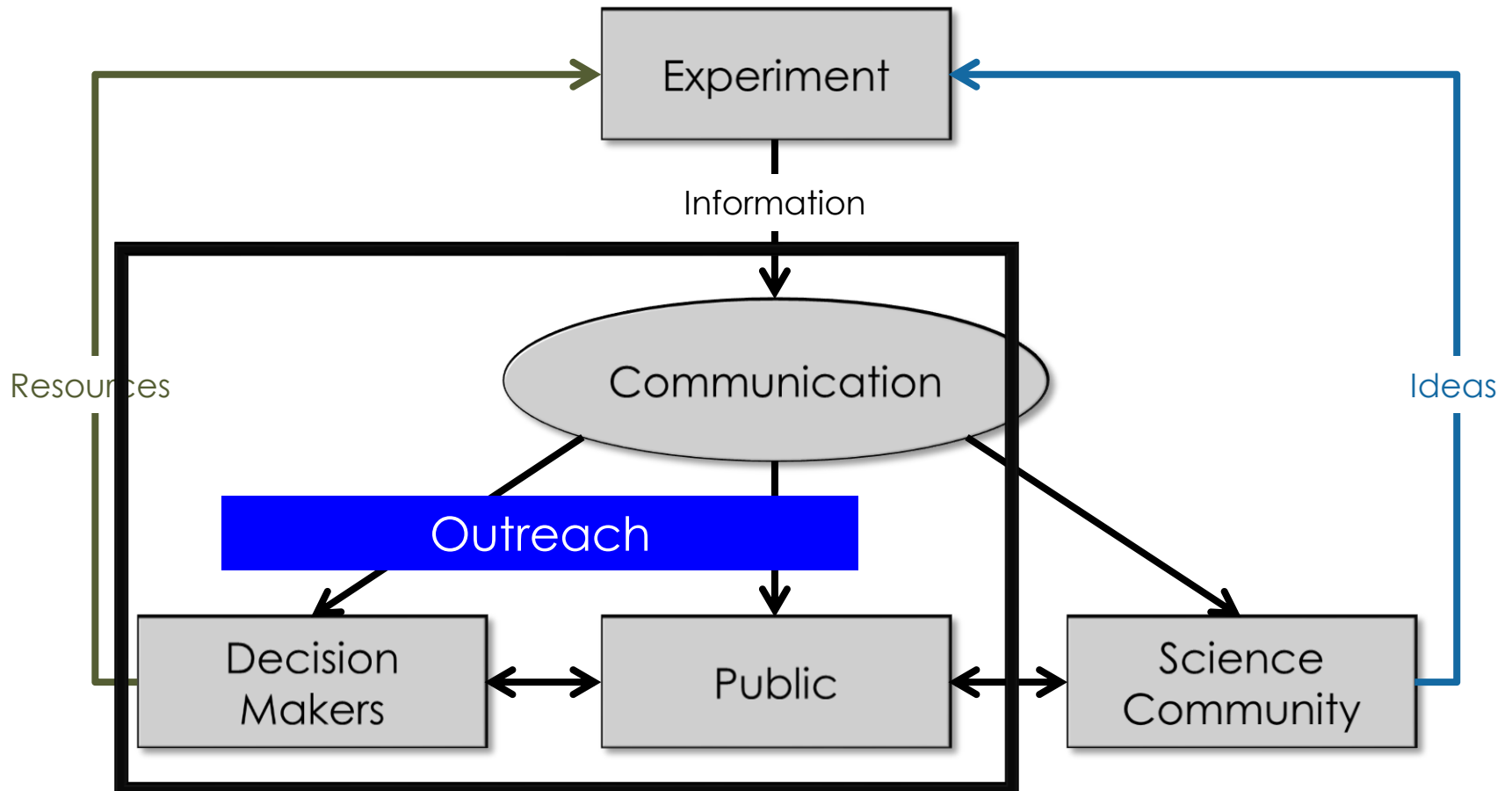
Where do we fit in?

Role of Communication in Science



Communication is both **central** and **essential** to the scientific process.

Role of Communication in Science



Target Audiences

With whom do we want to communicate?



General Public



Decision Makers

Teachers & Students

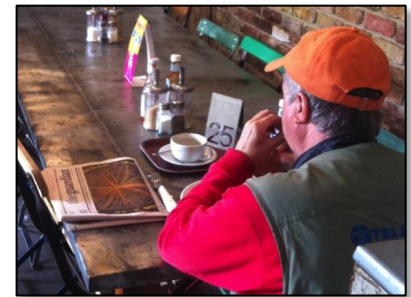


Goals

What do we want to achieve?

Goals of Outreach

1. Public appreciation of the scientific goals and achievements of the LHC and the field of particle physics
2. Sustained support for the LHC and particle physics research
3. **Attract and retain the next generation of scientists and science educators**



A Few Unwritten* Goals

- Fulfil our social obligation
 - Directly through dialogue

- Engage *remote* audiences
 - Geographically, Socially, Economically

- Train the members of our collaboration to communicate
 - For their sake and ours

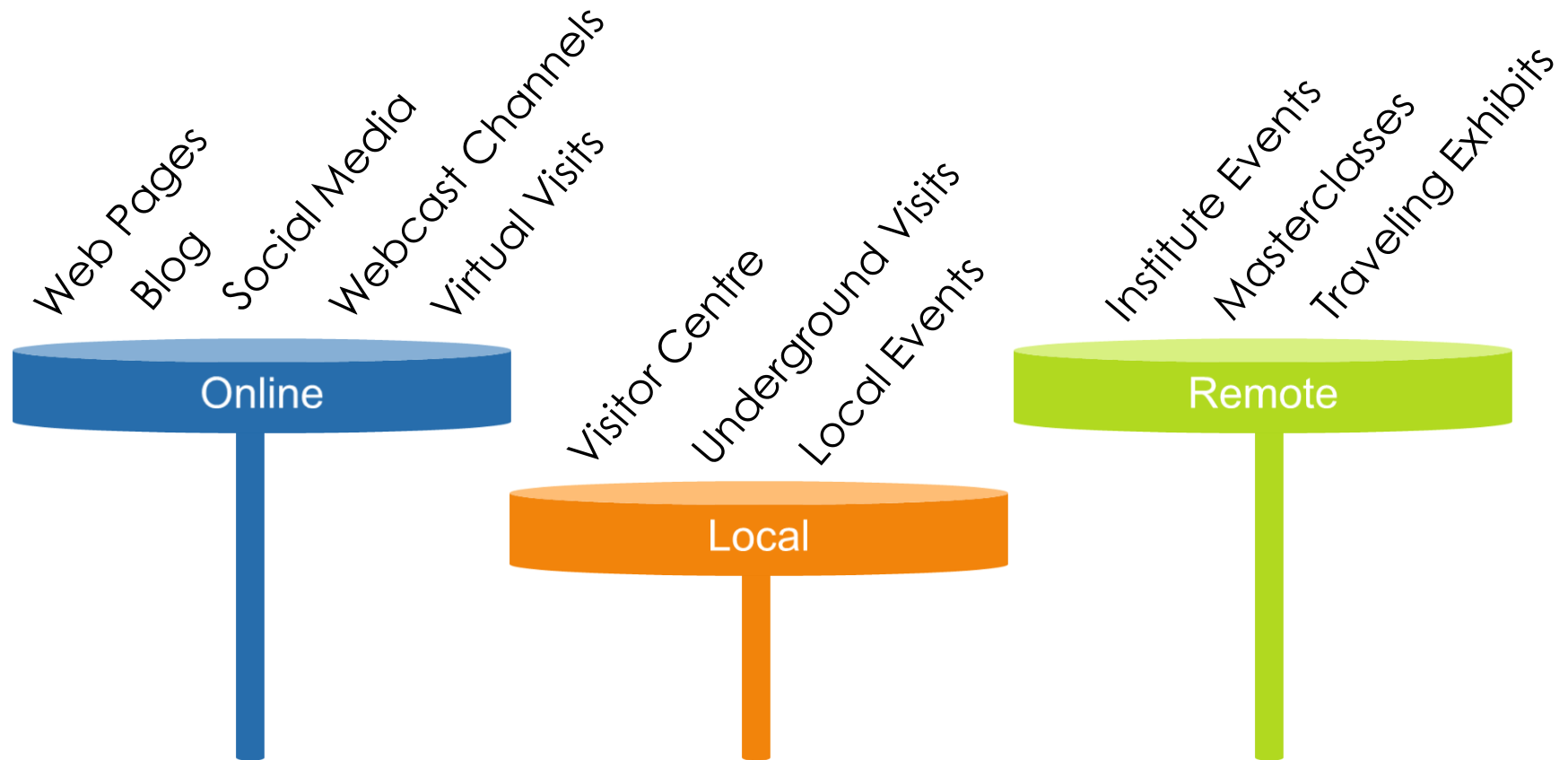


(*) but equally important

Platforms

...and their content

Outreach Platforms



ATLAS Public Web Pages

ATLAS EXPERIMENT

Home Info Multimedia Blogs Links Visit ATLAS Contact Collaboration Site Store Press Student/Teachers

News The Guardian: Higgs boson was just a start for Cern's atom smasher – other mysteries await.

Physics Briefs
Selected Results from the ATLAS Experiment

Precise Measurement of the Higgs Boson Mass

The Symphony of ATLAS

ATLAS RUN STATUS
TOTAL LUMINOSITIES
27.63 fb⁻¹ PROTON - PROTON
29.85 nb⁻¹ PROTON - LEAD
187.4 μb⁻¹ LEAD - LEAD

LHC shut down for upgrades. Restart April 2015. More info. can be found here.

ATLAS Science & Art

ATLAS and the Higgs
Finding the Higgs Boson is changing our understanding of the world. Learn more.

Discovery Quest ATLAS eTours Art in ATLAS

About ATLAS

Mapping the Secrets of the Universe
ATLAS is a particle physics experiment at the Large Hadron Collider at CERN that is searching for new discoveries in the head-on collisions of protons of extraordinarily high energy. ATLAS will learn about the basic forces that have shaped our Universe since the beginning of time and that will determine its fate. Among the possible unknowns are extra dimensions of space, unification of fundamental forces, and evidence for dark matter candidates in the Universe. Following the discovery of the Higgs boson, further data will allow in-depth investigation of the boson's properties and thereby of the origin of mass.

- What is the schedule of ATLAS?
- Who are the 3000 physicists in ATLAS?
- What is the LHC?
- How big is ATLAS?
- How much data will be recorded?
- Why is there so much excitement?
- Are students involved?

Higgs Multimedia Material Images Videos YouTube

"... This film produced in July 2012 explains how fundamental research connects to society and collaboratively may be generated in the future using ATLAS Collaboration as a case study."

The ATLAS Story
Impacts of its Science.

The ATLAS Experiment © 2014 CERN

ATLAS EXPERIMENT

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ATLAS News

News Home

Like Share 11 people like this. Be the first of your friends. 8+1 43 Tweet 5

Are You Up for the Higgs Challenge?

June 16, 2014

It's been four weeks since the four-month long Higgs Machine Learning Challenge was announced. Almost 700 teams have signed up and more than 200 have beaten the in-house benchmark already.

Last year, ATLAS published a result observing a signal of the Higgs boson decay into two tau particles, this decay being a small signal buried in background noise. The Challenge's task is to develop an algorithm to improve the analysis using simulated ATLAS data by classifying events into 'two tau decay of a Higgs boson' versus 'background'. No knowledge of particle physics is required but machine learning skills are necessary.

Machine learning is a branch of artificial intelligence in which computers are trained to recognize patterns in data. The top three teams will get cash prizes sponsored by Paris-Saclay Centre for Data Science and Google. The best algorithms may be applied to real ATLAS data. Winners will be invited to CERN to discuss their results. A workshop proposal is being submitted to the Neural Information Processing Systems conference in December 2014. If accepted, the winners will also be invited to contribute to the workshop.

We met with two of the organizers David Rousseau, high energy physicist, and Balázs Kégl, machine learning expert. Excerpts:

Why create an open challenge?
David: Only a few ATLAS people are experts in machine learning. Instead of searching through specialised machine learning literature, we put data on the web so people who write such literature can directly apply their algorithms to our data. For the challenge, we released our simulated Higgs decay into tau data, which was used to train the analysis for the result announced in 2013. With a good

Other Stories

- The Symphony of ATLAS (June 2014)
- Are You Up for the Higgs Challenge? (June 2014)
- Higgs Mass to String Balls (June 2014)
- A New Sub Detector for ATLAS (June 2014)
- New Results from ATLAS at Quark Matter 2014 (May 2014)
- ATLAS Book Wins the IPPY Awards (May 2014)
- ATLAS Cavern Barjo Video Wins Third Place (May 2014)
- Photo Essay: "A Hard Day With So Much Beauty" (May 2014)
- ATI & CERN with Science East

Other Items

- Discovery Quest
- Check out the ATLAS fact sheets.
- ATLAS FAQs
- ATLAS eTours
- ATLAS News Home

When High Energy Physics meets Machine Learning

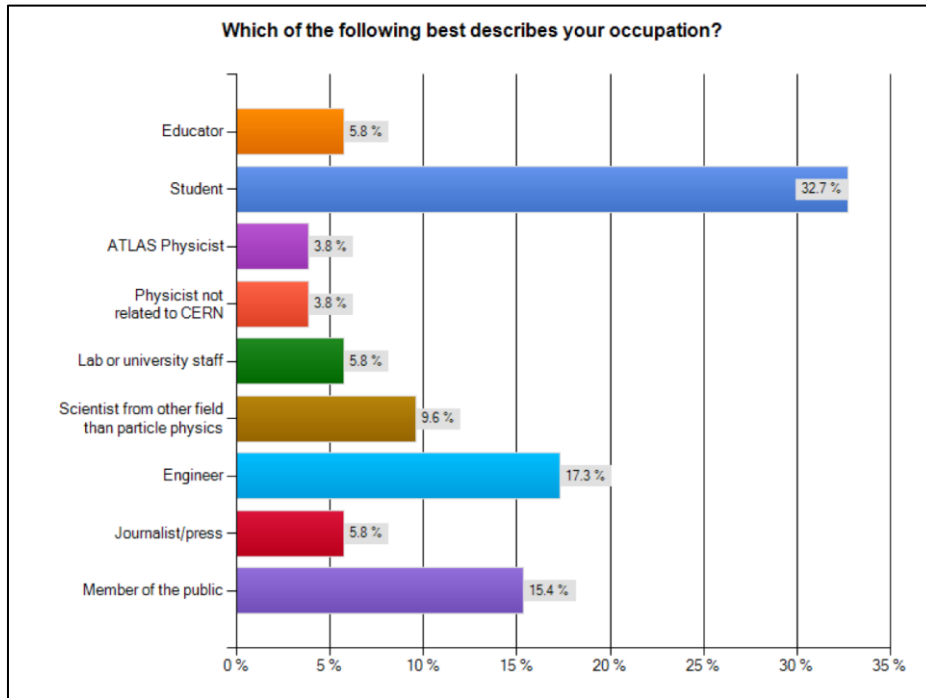
Official poster of Higgs Machine Challenge, can be downloaded here.

Photo Essay: "A Hard Day With So Much Beauty"

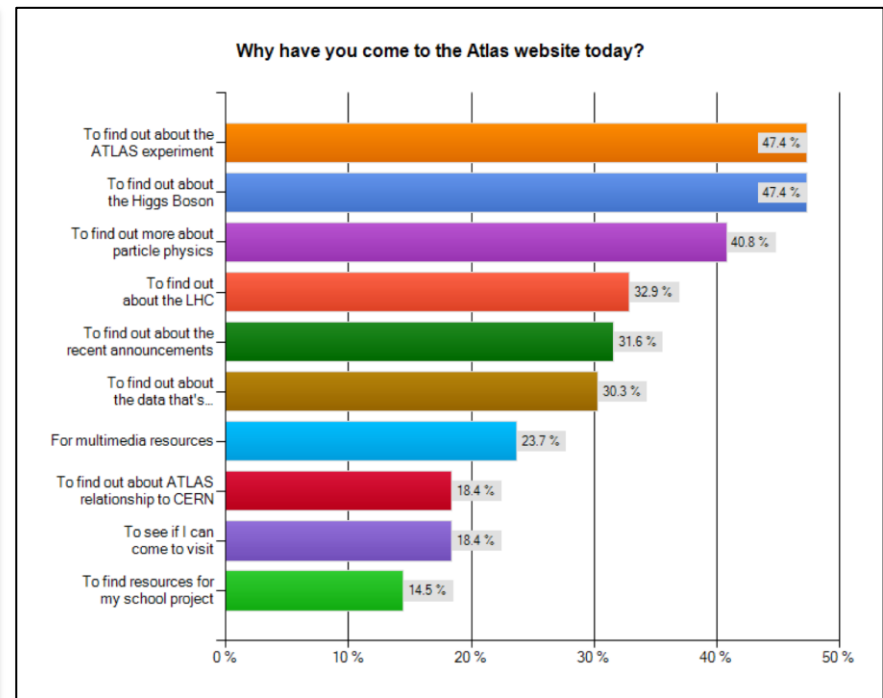
ATLAS Public Web Page – Readers

Reader Survey Results

Who are you?



Why are you here?



Social Media

Facebook Page

83 Page Likes
10,620 Post Reach
UNREAD

Facebook Group

8,143 likes

ATLAS Experiment Network

Article about the ATLAS detector's new part:

A new heart for the ATLAS detector
US scientists collaborated with an international team to install a new component in the core of the ATLAS detector at the Large Hadron Collider.

Facebook Page

Google Plus

ATLAS Experiment
atlas.ch

27,624 followers | 2,481,407 views

ATLAS Experiment
@ATLASExperiment

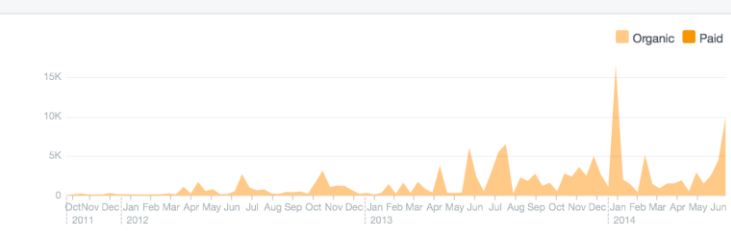
ATLAS is an experiment at the Large Hadron Collider that is searching for new discoveries about the origin of mass, extra dimensions, and dark matter.

Tweets: 906 | Photos/Videos: 94 | Following: 76 | Followers: 19.8K | Favorites: 62

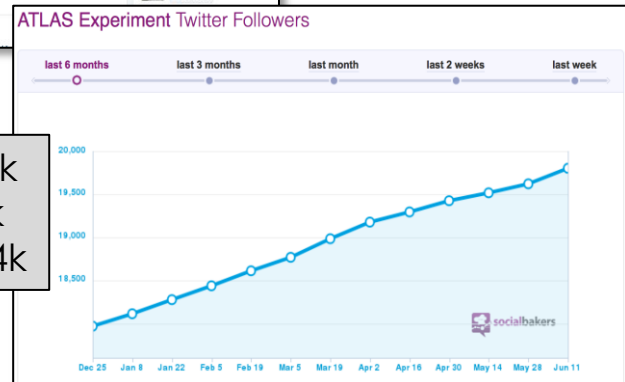
Your Dashboard
View your Dashboard
Your community

Twitter

Total Reach
The number of people who were served any activity from your Page including posts, posts by other people, Page like ads, mentions and checks.



Facebook Reach 20k
Twitter Followers 20k
Google+ Followers 34k



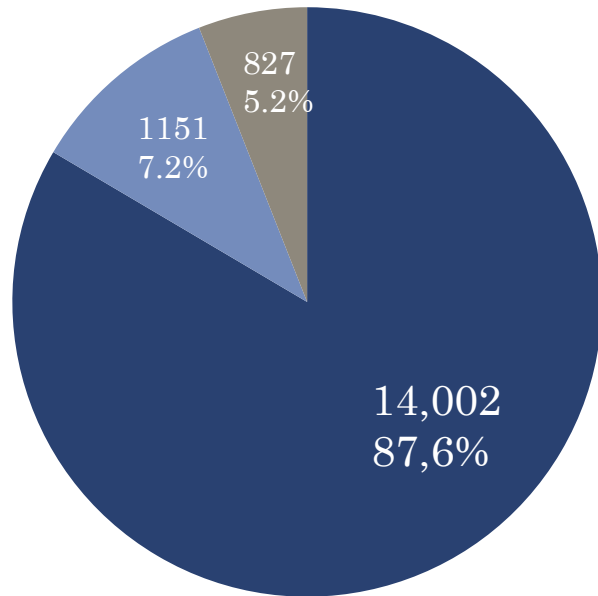
ATLAS Visitor Centre



- Active Part of CERN Visit Circuit
 - Presented by ATLAS / CERN Guides
 - Interactive Displays, Games, 3D Movie
 - Inaugurated in 2008
 - 50k Visitors in 2013 (far greater than expectations)
 - Complete re-vamping in the works, including possible new building...

ATLAS Underground Visits

Visitors 2013
Total: 15,980



+ 2500 during Open Days



Rolex Director General
G. Marini



German President
Joachim Gauck



Pop Star, STEM Supporter
Will.i.am

ATLAS Virtual Visits





ATLAS Virtual Visits

Welcome Share on 

The ATLAS Experiment at CERN is one of the largest most complex scientific instruments ever constructed. It is designed to explore the inner universe, advancing our understanding of the basic building blocks of nature.

Three thousand physicists from 175 institutions in 38 countries around the world participate in ATLAS. When the LHC is in operation, up to 600 million protons collide every second inside the detector. ATLAS Virtual Visits gives the public a unique opportunity to be part of this great scientific adventure.

Using web-based video conferencing tools, participants talk with an ATLAS physicist, receive a tour of the control room, and get answers to their questions.

Next Event:



New York

Fri, 18 May





Future Events
A list of upcoming Virtual Visits.



Past Events
A selection of ATLAS Virtual Visits from all over the world



Technical Requirements
All you need to know to organise your own ATLAS Virtual Visit



ATLAS Experiment
Discover one of the world's greatest scientific adventures

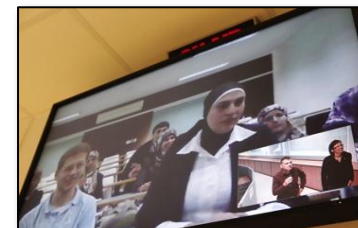


ATLAS Live
The web cast of ATLAS Experiment



Visit CERN
Come and see inside the world's largest particle physics laboratory

Since 1 Jan 2013
 108 Visits
 74 Guides
 7 Continents



ATLAS Virtual Visits

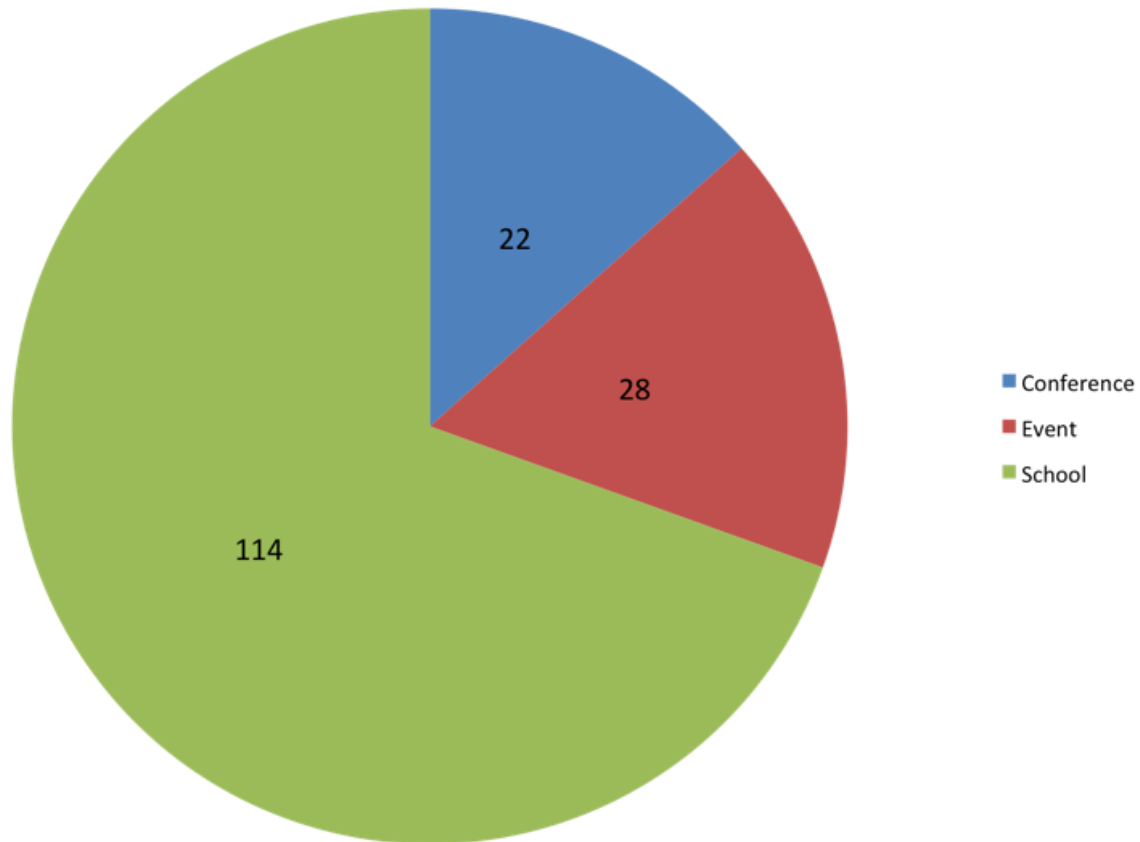


<http://cern.ch/atlas-virtual-visits>

ATLAS Virtual Visits



Distribution of Virtual Visits per type

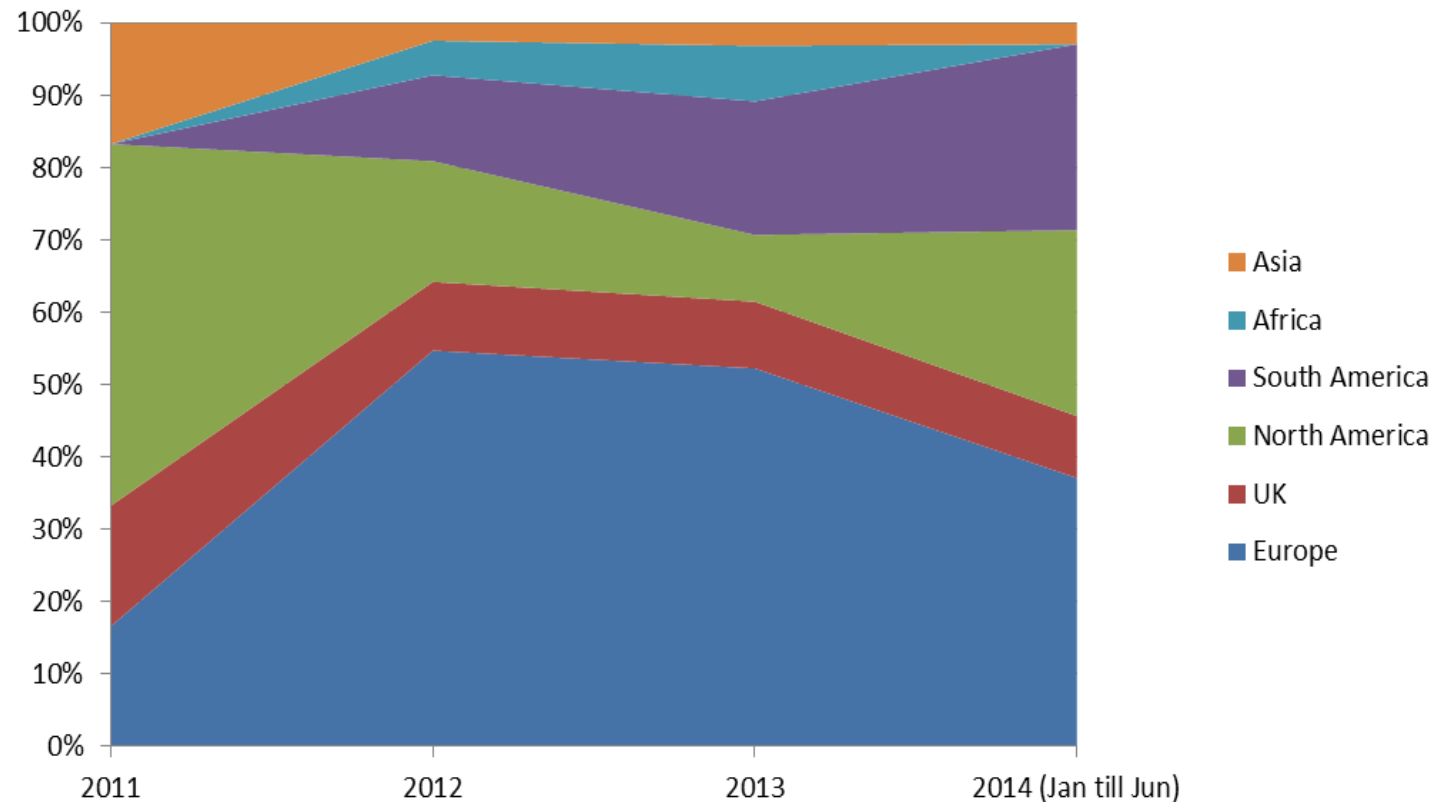


<http://cern.ch/atlas-virtual-visits>

ATLAS Virtual Visits



Percentage of Annual Visits from Various Regions



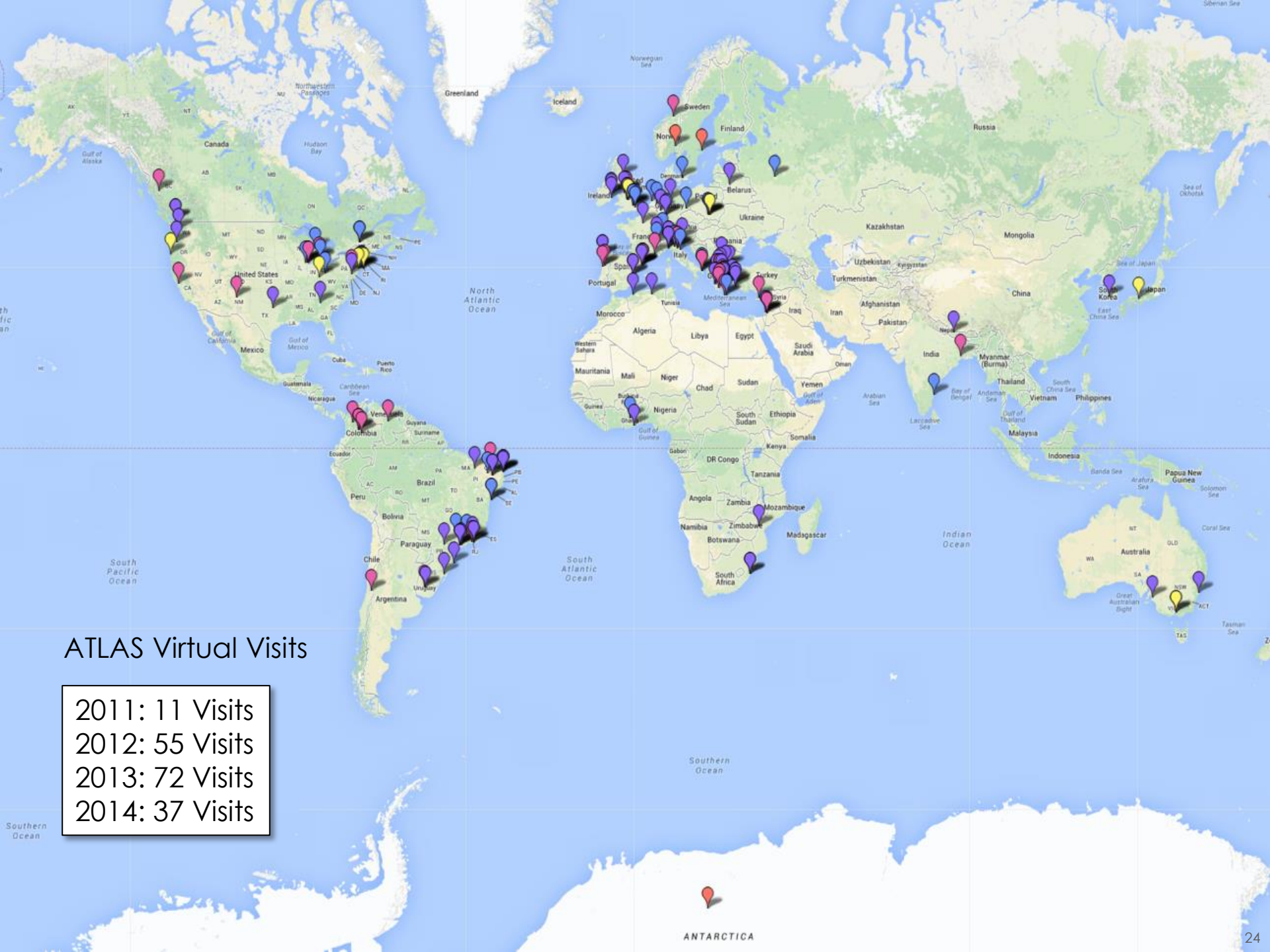
ATLAS Virtual Visits



Recent Remote Participants

- ▣ Instituto de Física Corpuscular in Valencia, Spain
- ▣ Masterclass, University of Birmingham, UK
- ▣ The State University of Rio de Janeiro, Brazil
- ▣ Schools Fontes Pereira de Melo in Porto, Portugal.
- ▣ The Museum of Science and Industry in Manchester
- ▣ Kathmandu University in Dhulikhel, Nepal
- ▣ Pedagogical University of Mozambique
- ▣ Indian Institute of Technology in Kharagpur, India
- ▣ High Schools in Chalkida and Chania, Greece
- ▣ Al-Quds University, Palestine
- ▣ Science Festival in Chicago, US
- ▣ National Hispanic Cultural Center, Albuquerque, US

<http://cern.ch/atlas-virtual-visits>



ATLAS Virtual Visits

2011: 11 Visits
2012: 55 Visits
2013: 72 Visits
2014: 37 Visits

ATLAS Virtual Visits



Next Steps (and some dreams)

- ▣ Re-vamping of ATLAS Infrastructure (HD Quality)
- ▣ Joint visits with CMS, other LHC experiments
- ▣ CERN-wide service?
- ▣ Educational platform for post-visit activities?
 - ▣ Content management site
 - ▣ Material collected by class
 - ▣ Links to resources found by class
 - ▣ Chat with physicists, other classrooms
 - ▣ Etc.

Hangout with CERN



CERN Google+, YouTube, Every Thursday at 17:00 CET

Links

ATLAS Public Platforms

Public Home Page	http://atlas.ch
ATLAS Blog	http://atlas.ch/blog
ATLAS Virtual Visits	http://cern.ch/atlas-virtual-visit
ATLAS Live	http://cern.ch/atlas-live
Twitter Feed	http://www.twitter.com/ATLASexperiment
Facebook Page	http://www.facebook.com/ATLASexperiment
Google+ Page	http://www.google.com/+ATLASexperiment
YouTube	http://www.youtube.com/user/TheATLASExperiment

Common Projects

IPPOG Database	http://ippog.web.cern.ch
Hangout with CERN	http://cern.ch/hangouts