

Sharing ATLAS Science: engaging the public

Giuseppe Carratta^{a,b,*}, on behalf of the ATLAS Collaboration

^a*Dipartimento di Fisica e Astronomia “Augusto Righi”, Alma Mater Studiorum Università di Bologna,
Via Irnerio 46, 40126, Bologna, Italy*

^b*INFN - Sezione di Bologna,
Viale Carlo Berti Pichat 6/2, 40127, Bologna, Italy*

E-mail: carratta@bo.infn.it

Communicating the science goals and achievements of the ATLAS Experiment is a core objective of the ATLAS Collaboration. This paper will explore the range of communication strategies adopted by one of the main LHC experiments. We provide an overview of ATLAS’ digital communication platforms, including its website, social media, YouTube and Virtual Visit programme. We also present material and activities designed to engage students and public of all ages, including books, printable material, events at festivals, public talks and more. Measured effects on target audiences are evaluated in several cases and best practices are shared.

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*Speaker

1. Introduction

The ATLAS Collaboration at CERN [1] considers outreach and science education as one of the most important missions to pursue. Indeed, ATLAS collaborators are deeply involved in several projects whose goal is sharing ATLAS scientific results to the general public, such as its community activities. Scientists have the responsibility to cultivate an understanding of science concepts, in order to ignite the inspiration of the upcoming generation of researchers. Educating the general public is fundamental to address the worldwide crisis of skepticism towards science, as well as to gain its support to promote backing for fundamental research. The ATLAS Collaboration has an outreach team which supports it in communicating its goals and accomplishments to the public. This communication is allowed by a diversified approach to reach different audiences on different platforms, exploiting the ATLAS website, social media, Virtual Visits, Visitor Centre , printable materials, Open Data [2], and even more.

2. Website

The ATLAS public website [3] is the main hub for public content, with high quality, in-depth material, divided into four main sections. Visiting the website through them, visitors can find: information about the ATLAS Detector and the Collaboration; detailed explanations about the detector components, the ATLAS physics programme and technology; a catalogue with all ATLAS-related outreach materials; contents related to current events, such as news, press statements, briefings, blog posts and others.

Content creation stems from the collaboration of ATLAS members with communication experts. News and statements are pushed to Google News to broaden the public audience available.

ATLAS members collaborate also with the CERN communication team to share ATLAS news and briefings on the main CERN website [4], to engage more people and to increase the ATLAS website visibility to attract more viewers.

3. Social Media

In recent years, social media has become an essential tool for sharing scientific content with a broader and more diverse audience, as well as directing people to website. The ATLAS Collaboration has official accounts on all major platforms: Instagram [5], Facebook [6], Twitter/X [7], TikTok [8], YouTube [9], LinkedIn [10]. Contents are created depending on the platforms properties and their audience.

For instance, YouTube and TikTok are video-based social media platforms, but while the former is used for sharing longer videos, such as Virtual Visits or expert discussions to learn about particle physics, the latter employs shorter and more informal videos to catch a younger audience.

On the other hand, Facebook and Instagram demand concise text posts followed by self-explanatory multimedia. For the latter, links cannot be utilized, hence making it essential to include all the crucial details within the post.

4. Virtual Visits

ATLAS has a well-established outreach program aimed at connecting various groups of visitors with ATLAS scientists in the ATLAS control room or within the ATLAS Cavern. To facilitate this, ATLAS offers Virtual Visits [11], which are live videos created for this purpose. These Virtual Visits enable visitors to gain virtual access to the ATLAS Cavern through a Zoom live stream, and sometimes via YouTube, with the guidance of an on-site host.

The program caters to a wide range of visitors, including classrooms spanning from primary to high school and university students. In 2021, ATLAS introduced Open Visits to accommodate individual visitors as well.

In 2022, ATLAS hosted 121 Virtual Visits for people from 36 countries in 8 different languages; in addition, 6 open visits from the cavern were conducted. In 2023, at the time this work was presented, 51 visits from 24 countries have been presented, as shown in Figure 1.



Figure 1: Map showing countries participating in Virtual Visits in 2023 [11].

5. Visitor Centre

The ATLAS Visitor Centre at CERN [12] is a guided exhibition space, located above Point 1 of the LHC ring, and adjacent to the ATLAS Control Room. It has welcomed visitors since 2009, and it was redesigned and renovated between 2018 and 2021.

The Visitor Centre consists of five installations separated into as many sections. Visitors are guided through the different sections, where the installations highlight all the features of the ATLAS Experiment, focusing on its physics programme and goals.

It is one of the most-visited guided sites of all the CERN Visit programme, with thousands of visitors every year, mainly students, tourists and journalists. It also hosts ATLAS Virtual Visits when the cavern is not accessible.

6. Printables

The ATLAS Collaboration offers a diverse selection of resources suitable for people of all ages and education levels. They are readily accessible on the public website, with many of them translated in multiple languages to increase the audience.

The colouring books and activities sheets [13] are specifically designed to introduce the concept of particle physics to children. The “ATLAS Experiment Colouring Book” and the “Particles of the Universe Colouring Book” are available in 21 and 11 languages, respectively. In addition, to help parents and teachers discuss the topics of the ATLAS Colouring Books, also a dedicated guide is provided. The activity sheets, available in 7 languages, are an extension of the colouring books which allow kids to reinforce what they have just learned and explore all-new topics.

More advanced topics are covered in the 10 ATLAS Fact Sheets [14], in up to 7 languages, and in the 6 ATLAS Cheat Sheets [15], in up to 4 languages. The former focuses on the description of the detector subsystem, from the magnet system to the computing infrastructure. It also covers the Higgs boson and technology transfer. The ATLAS Cheat Sheets explore different particle physics topics, from cross section and luminosity to statistical significance, as well as Feynman diagrams.

7. Conclusions

The ATLAS Collaboration has established an important and efficient system for sharing its physics program and engaging the public. It has employed various approaches and strategies to create and adapt content to specific target audiences. To maximize outreach, ATLAS exploits a wide range of platforms and activities, making resources accessible to a broad audience.

References

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