



**British
Geological Survey**

NATURAL ENVIRONMENT RESEARCH COUNCIL

Broadcasting the science stories of BGS

The British Geological Survey communications strategy

Corporate Communications and Publications

Open Report OR/14/019



BRITISH GEOLOGICAL SURVEY

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Clive Mitchell, Sarah Nice, John Stevenson, Joanna Thomas,
Gemma Nash and Lauren Noakes

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Film maker Ed Collard and BGS
geologist Dr Andy Howard at
Sedgewell Cove, Bigbury-on-
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BRITISH GEOLOGICAL SURVEY

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The London Information Office also maintains a reference collection of BGS publications, including maps, for consultation.

We publish an annual catalogue of our maps and other publications; this catalogue is available online or from any of the BGS shops.

The British Geological Survey carries out the geological survey of Great Britain and Northern Ireland (the latter as an agency service for the government of Northern Ireland), and of the surrounding continental shelf, as well as basic research projects. It also undertakes programmes of technical aid in geology in developing countries.

The British Geological Survey is a component body of the Natural Environment Research Council.

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Foreword

This report is the communications strategy for the British Geological Survey (BGS). It accompanies the new BGS science strategy, *Gateway to the Earth: Science for the next decade* (BGS, 2014). It was devised by the current Head of Corporate Communications and Publications, Clive Mitchell, in collaboration with BGS colleagues Sarah Nice, John Stevenson, Joanna Thomas, Gemma Nash and Lauren Noakes. This strategy will be used to guide the annual Communications Plan of the BGS for the next decade. During that time it will be regularly reviewed and updated when appropriate to take into account changes to the strategic direction of BGS scientific and technological research, refinements of communications good practice, advances in communications technology and the development of new communication channels

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Summary

The British Geological Survey (BGS) is a world leading geological survey that focuses on public-good science for government, and research to understand earth and environmental processes. Prior to November 2006, the communications culture of the BGS had been largely driven by reaction to news events and managing media requests as they emerged. Since 2007, when greater emphasis was placed on more proactive communications, the public profile of the BGS was successfully raised. In 2014, the BGS released its new science strategy, *Gateway to the Earth: Science for the next decade*. This has the vision of BGS becoming a global geological survey with a focus on new technologies, responsible use of natural resources, management of environmental change and resilience to environment hazards. This has informed the development of a new communications strategy for the BGS, which is outlined in this report.

The main audiences for BGS science and technology are the public, government and other decision makers, industry and private business, academia, BGS staff and the wider NERC community and the media. Communication with these audiences is largely through the broadcast media and the internet, with additional communication through the print media, and the public engagement activities of the BGS.

The UK Governments communications plan for 2014-15 has as its vision ‘exceptional communications’, and the Government’s Digital Strategy aims to put more data into the public domain. The key messages in the Department for Business, Innovation and Skills policy paper ‘Engaging the public in science and engineering’ are that new audiences need to be targeted outside those already interested in science and that engagement needs to be ‘where people naturally congregate, rather than expecting them to come to us’. The communication trends that have influenced the development of the new BGS communications strategy have included: mobile went mainstream; transparency and trust; social media; science stories; image is everything; and, analytics and evidence. The new communication vision is to *Establish the British Geological Survey as a global authority for geoscience*. The over-arching aim is to create the maximum impact for BGS science and technology by communication with the world through the media, web and public engagement. BGS will make use of traditional, new and emerging communication channels to communicate its research with the following overarching themes:

- **broadcasting** – broadcast the science of the BGS
- **science** – demonstrate the impact of BGS science
- **stories** – tell the geoscience stories of the BGS.

The following are the key communication objectives:

- make BGS the ‘go to’ organisation for geoscience news events in the UK and globally
- use broadcast quality video to communicate the research of the BGS
- use infographics to illustrate the impact of BGS research
- engage a wider audience by telling the science stories of the BGS
- create a website that is the first port of call for geoscience information
- create a positive reputation and strong brand image for the BGS using social media
- create a novel digital publication channel to publish the research of the BGS
- actively work to promote geoscience as a career choice and to explain BGS research
- create a more successful research community in BGS by effective internal communication (both one-way and two-way).

1 Introduction

The British Geological Survey (BGS) is a world leading geological survey that focuses on public-good science for government, and research to understand earth and environmental processes. As an organisation, the BGS has an annual budget of approximately £50 million (of which 50% comes from the Natural Environment Research Council, NERC), 640 scientists and support staff, 150 current private sector customers and 20 unique science laboratories (For further details visit www.bgs.ac.uk).

Communication is the lifeblood of science and scientific achievement. The pursuit of scientific investigation builds on the findings of past scientists and leads to future scientific discoveries including those that are unpredicted and unsuspected by the present-day generation. Without the communication of scientific discoveries the world would be a very different place. It is important that scientists communicate their science to the wider world, explain its potential impact on society and ultimately satisfy those that provide their research funding. The BGS takes communications seriously as a means of not only establishing its expert credentials, but also to maintain its reputation, and as a means of raising awareness of the organisation.

This report outlines the communication strategy of the BGS. It explains how we will tell the wider world who the BGS is, what it does, and why it is important.

2 BGS communication: background

2.1 CURRENT STATE OF COMMUNICATIONS AT THE BGS

Prior to November 2006, the communications culture of the BGS had been largely driven by reaction to news events as they happened and managing media requests as they emerged. In 2007, the BGS embarked on a process of formalising its communication planning. This led to the creation of the BGS Communications team which encompassed the BGS press office, the outreach programme and the web editor. In 2008 a communications strategy was drafted by the communications team leader, Dr Marie Cowan in conjunction with marketing consultants Insidedge (Insidedge, 2008). Although not formally published, this strategy has guided BGS communications over the period 2008 to 2014 (during which time Dr Aoife O'Mongain and Clive Mitchell were the Team Leaders). The key driver for the creation of the new team and its strategic direction was the desire to shift the communications ethos from a reactive to a proactive approach.

In 2013, the BGS Communications Team was incorporated into the BGS Corporate Communications and Publications corporate function alongside web delivery, internal communications and publications. The organogram for the BGS Corporate Communications and Publications corporate function as of April 2014 is shown in Figure 1.

The public profile of the BGS has been successfully raised since the creation of the communications team in 2007. This can be seen in Figure 2 which charts the increase in media enquiries and online media hits. Overall, there has been a four-fold increase since 2006. Figure 2 also shows that there has also been a significant increase in 'web hits' (unique visitor sessions) recorded for the BGS website (www.bgs.ac.uk) over the same period. This can in large part be attributed to the attention that the BGS has paid to improving the communication of its science.

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Communications Strategy, Implementation and Delivery
Team Leader and Skills Leader
Lead BGS science & information communicator

Communications Coordinator

Nichola Gaffney (B8)

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Documents & video production

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Sarah Nice (B6)

Press Office (Edinburgh)

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Media Manager)

Aoife O'Mongain (B5)

Facilitate media engagement
Monitor media coverage
Training, advice & resources
Press releases, statements &
briefing documents
Press conference & briefings
Videos & podcasts; Science
Festivals; Social Media
Media rooms

WEB DELIVERY

Head

Gemma Nash (B6)

Web developers

Emma Ball (B7)

David Scott (B6)

Claire Chetwyn-Allen (B7)

Web content delivery
Hosted sites
Web support / resources
Support Internal Comms
Support Contribute
users
Work with BGS web &
app developers

PUBLIC ENGAGEMENT

Head

John Stevenson (B6)

School Seismology

Paul Denton (B5)

Discovering Geology content
Host Open Days & site tours
Schools events e.g. National
Science & Engineering Week
Geoscience in national curriculum
School Seismology projects
Collaboration with national
museums, science centres &
Earth Science organisations

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Intranet Manager

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Liaison with BGS staff
and management
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Core Matters newsletter
BGS Intranet
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Site displays & posters

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Joanna Thomas (B5)

Web Editor

John Stevenson (B6)

Publishing strategy &
prioritisation
Editorial service for web,
science & corporate output
Digital publications (Intelligent
Publications, iPubs)
Book & report publishing

Figure 1 Organogram for BGS Corporate Communications and Publications.

2.2 BGS SCIENCE STRATEGY

In 2014 the BGS released its science strategy for the next decade, *Gateway to the Earth: Science for the next decade* (BGS, 2014).

The vision for the BGS is as follows:

“Our vision...is to be a global geological survey, working with new technology and data to understand and predict the geological processes that matter to people’s lives and livelihoods”

The goals of the BGS science strategy are:

- ***Instrumenting the Earth***

Harnessing new technologies so that we understand how geological processes act in real time. This will be important for our future use of the subsurface for groundwater, energy and waste disposal. It will enable us to improve our understanding of subsurface processes and make us better at managing these activities safely and sustainably.

- ***Use our natural resources responsibly***

BGS will continue to research resource security, evaluation and extraction for, amongst others, critical metals, groundwater and shale gas. We will also research energy storage and geological disposal e.g. of radioactive waste and carbon dioxide. BGS science aims to ensure that we get the most out of resources without harming the environment.

- ***Manage environmental change***

BGS specialises in long-term monitoring and observation to detect change that may not be visible day to day. Our analysis looks for tipping points and feedback, and in the future we will build computer models to help predict environmental change and so protect lives and property in a timely and economical way.

- ***Be resilient to environmental hazards***

BGS will use new technologies to improve satellite measurement and real-time monitoring of hazards including earthquakes, volcanoes, tsunamis, landslides, floods and subsidence. This will allow us to assess, model and forecast hazards. It will ultimately help to mitigate their effects and go some way towards improving our resilience to natural hazards.

The BGS will use its new understanding of geological processes and existing research capacity to rise to these global challenges. Its work will be achieved by nurturing our staff, developing new partnerships with universities, institutes and businesses, playing to our core strengths in 3D geology and the national geological database, and by remaining a trusted, independent voice for the geological sciences in the UK and globally.

The new BGS science strategy has informed the redevelopment of the communications strategy outlined in this report and ensures that it fits with the new emphasis and direction of BGS research. This communications strategy will be used to guide the annual communications plan of the BGS which will be issued in line with the financial year.

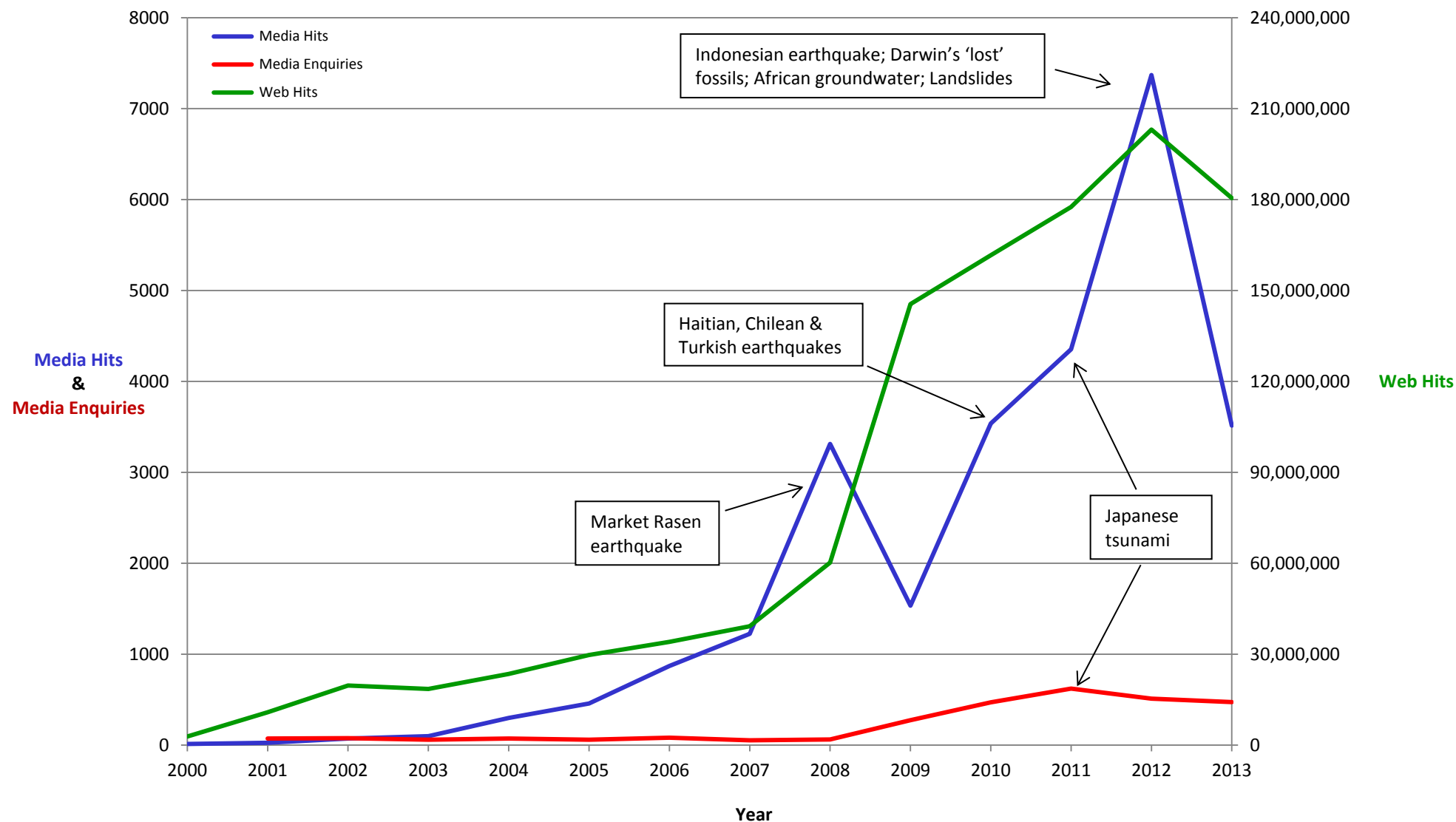


Figure 2 Media enquiries, media hits and web hits received by BGS from 2000 to 2013.

NB Media enquiries are recorded on the BGS Intranet Data Access (IDA) database; Media hits are recorded using an online media monitoring service and date back to 2001; BGS web hits are the unique visitor sessions and were not collected before July 2000.

3 BGS communication: audience and context

3.1 THE BGS AUDIENCE

The BGS communicates its science with the following key audiences:

- **General public:** A significant part of the general public are interested in those aspects of the geosciences that impact on their daily lives such as groundwater flooding, landslides, sinkholes, and the development of energy and mineral resources. They are also interested in the ‘big name’ geological research on dinosaurs, volcanic eruptions, earthquakes, tsunamis and space weather events such as the northern lights. This large audience typically learns about the BGS and its work through the broadcast media channels of the BBC, ITV, Channel 4 and Sky News. In addition, they also learn about BGS science through the print media, the online sites of both the print and broadcast media, and the public engagement activities of the BGS, such as the open day held in June 2013 (Figure 3).



Figure 3 BGS Open Day 2013 event *What makes a smart phone?*

(as devised and run by BGS industrial minerals specialist Clive Mitchell, on the right of the photo)

- **Government and other decision makers:** Government and other decision makers are key stakeholders of the BGS including government departments such as BIS (Business, Innovation and Skills), DECC (Department for Energy and Climate Change) and DfID (Department for International Development). In addition, the European Commission, the devolved governments in Scotland, Wales and Northern Ireland, local authorities and other organisations such as the national park authorities are also stakeholders of the BGS. They directly provide the largest part of the funding for BGS research ranging from real-time monitoring (including earthquakes, space weather and landslides), modelling (including 3D geological models of Great Britain, the environment and climate change) and guidance on resource development (including energy resources such as shale gas, groundwater and mineral resources such as tungsten and other critical raw materials).

- **Industry and private business:** Industry, in the UK and internationally, is a significant stakeholder of the BGS and commissions research that draws upon the spectrum of the scientific expertise of the BGS. Business clients of the BGS come from a wide range of sectors including the following: construction, consultants and conveyancing, data providers and value added resellers, insurers and financial companies, those working in the marine and coastal environments, the minerals industry, oil and gas companies, power and energy companies, rail, road and pipelines operators, tourism and education and water companies (BGS, 2014).
- **Academia:** Academic institutions from across the world collaborate with the BGS on all aspects of its research including ‘internationally excellent’ research carried out by the National Isotope Geosciences Laboratory (NIGL), as well as BGS research on climate, the Quaternary and hydrogeology (NERC, 2013a).
- **BGS staff and the wider NERC community:** Communication with the ‘internal’ audience within the BGS, and others within the NERC, is increasingly important as the BGS changes in response to the need to ensure that it can continue to meet its strategic vision. Major changes that may occur include the ownership and governance of NERC centres (NERC, 2013b) and the new centre for earth and marine science and technology in Edinburgh, The Sir Charles Lyell Centre (NERC, 2013c).
- **Media:** Science and news journalists in the broadcast, print and online media act as important messengers conveying the work of the BGS. The relationship between the media and the BGS is largely facilitated by the BGS communications team. There are some prominent and well-known scientists within the BGS that often communicate directly with the media including [Dr Susan Loughlin](#) (volcanologist), [Andrew McKenzie](#) (hydrogeologist), [Professor Mike Stephenson](#) (geologist), [Dr Roger Musson](#) (seismologist), [Professor David Tappin](#) (marine geologist) and [Dr Helen Reeves](#) (engineering geologist, as seen being interviewed by the BBC in Figure 4).



Figure 4 Dr Helen Reeves filming with the BBC in Tynemouth 2013.

3.2 COMMUNICATION CONTEXT

The UK Government communications plan for 2014-15 outlines a vision to deliver ‘exceptional communications’ (GCN, 2014). The priorities are:

- to build a stronger, more competitive economy and a fairer society
- to campaign to improve the lives of people and communities in the UK
- to support for our public services
- to deliver responsive and informative communications in times of emergency and crises
- to enhance the UK’s reputation.

Emphasis is placed on increasing the professionalism of the Government Communication Service, making digital communications a core skill for all government communicators, excellence in internal communications and maximising available resources (e.g. by standardising the use of low or no-cost campaigns). The Government Digital Strategy (key message ‘digital by default’) commits government to remain a leader in the open data revolution by putting more data into the public domain to underpin social and economic growth (Cabinet Office, 2013). The Department for Business, Innovation and Skills policy paper ‘Engaging the public in science and engineering’ states that for the continuing prosperity of the UK we need high levels of skills in science, technology, engineering and maths and citizens that value them. The key messages are that new audiences need to be targeted outside those already interested in science and that engagement needs to be ‘where people naturally congregate, rather than expecting them to come to us’ (BIS, 2014). Global trends that have influenced the development of the BGS communications strategy include:

- **Mobile went mainstream:** The reach of traditional media channels continues to be eroded by the rapid spread of web-based alternatives, especially on mobile devices. It is anticipated that the proportion of internet traffic accessed using mobile devices will surpass that accessed using desktop computers in 2014 (WPP, 2014). An increasing proportion of BGS data is now accessed using mobile devices such as smart phones (Figure 5) especially via the popular BGS app *iGeology* (which has been downloaded 180 000 times since its launch in 2010 (www.bgs.ac.uk/iGeology)). As a consequence of this trend the BGS website is now fully compliant with mobile device standards to ensure the web content is more readily accessible.



Figure 5 iGeology app as used on an iPad.

- **Transparency and trust:** The BGS can only maintain its credibility as a trusted source of authoritative information by remaining impartial, objective and transparent. Providing relevant, timely and useful information using multiple channels of communication will help to engage people in a way that suits them rather than the organisation.
- **Social media:** Social media is fast becoming the top destination for the delivery and consumption of news and information. This is the world of the ‘always on’ with the expectation of an immediate response from an audience that is seeking to engage with

organisations. The challenge is to prioritise day-to-day responses, engaging with ‘digital influencers’ and creating a community of ‘superfans’ to help champion the organisation. The key is to be timely, honest and transparent (WPP, 2014).

- **Citizen science:** The new phenomenon of citizen science enables the public to collect or interpret data to help advance scientific knowledge. The BGS has benefitted from this via its ‘Have you felt an earthquake?’ and ‘Report a landslide’ online questionnaires. Direct dialogue between scientists and the public through social media is already a reality. BGS smart phone apps such as *mySoil* allow the upload of soil information.
- **Science stories:** There is a need for organisations to explain why they exist, what they do and how their work helps society. In order to make these explanations engaging, there is a place for meaningful storytelling, finding the narratives in scientific research and the human interest aspects. Organisations such as the BGS need to explain the impact and value of their research to counter the ‘so what’ question.
- **Image is everything:** Communication channels that use the visual medium such as cinema and television, as well as the web-based channels such as YouTube (Figure 6), Instagram and Tumblr are very popular and command huge audiences. The typical newspaper article may reach audiences of several hundred thousand people, whereas a TV broadcast will typically reach millions. The use of images, videos and infographics as a means of communicating complex research findings, and their impact, is growing and will become a major means for organisations to explain what they are about.

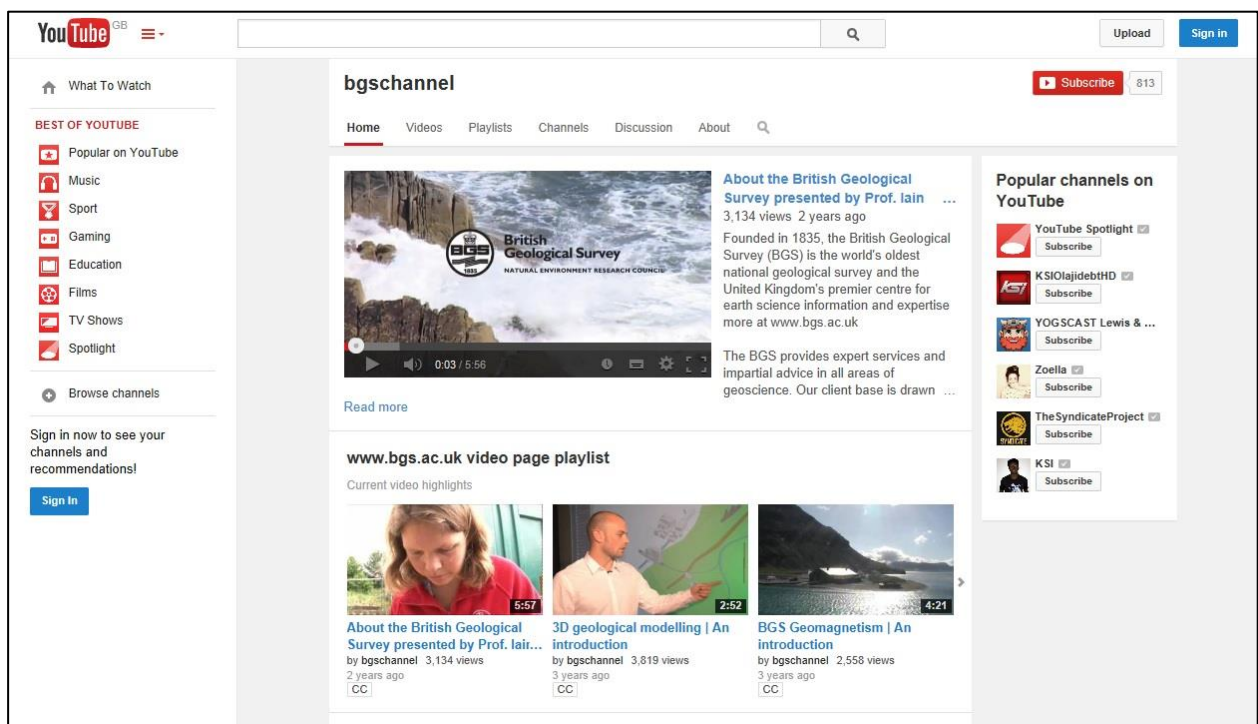


Figure 6 BGS YouTube channel (bgschannel).

- **Analytics and evidence:** More emphasis is now being placed on measuring the effectiveness of communications. The collection of communications data and its analysis, often referred to as ‘analytics’, includes recording the number of website visitors, online media monitoring (as shown in Figure 2) and social media statistics. A high-level aim of communicators is to raise the profile or public awareness of organisations such as the BGS. However, measuring the success of efforts to raise the profile is not something that can be easily achieved, there is no quantifiable measure. The perceived profile of an organisation can only really be gauged by consulting stakeholders, gauging their opinion and collecting anecdotal evidence.

4 BGS communication: what we will do

4.1 BGS COMMUNICATION VISION AND OBJECTIVES

The BGS communication vision is to:

Establish the British Geological Survey as a global authority for geoscience

The overarching aim is to create the maximum impact for BGS science and technology by communication with the world through the media, web and public engagement. BGS will make use of traditional, new and emerging communication channels to communicate its scientific and technological research with the following overarching themes:

- **broadcasting** – broadcast the science of the BGS
- **science** – demonstrate the impact of BGS science
- **stories** – tell the geoscience stories of the BGS

BGS will do this by:

- supporting and encouraging our staff to engage with the media and other communication channels
- increasing filming and production of videos of our staff and research
- seeking out and telling the stories of our science and technology
- using infographics to bring the impact of our science and technology to life
- continuing to develop our web and social media channels
- continuing to produce hard copy publications but at the same time pursuing the development of digital publication of our maps and reports
- continuing to develop our public engagement programme
- ensuring that our staff are fully informed and can engage with the executive through BGS internal communications channels (including one-way and two-way).

4.2 MEDIA ENGAGEMENT

Vision: Our vision is to become the ‘go to’ organisation, the first point of contact, for all geoscience-related news events in the UK, and a leading contact point for the global news media.

Overview: Prior to 2007, the BGS was an organisation that primarily responded to news events when prompted by the media. Awareness of the BGS as an organisation seemed to be fairly low. In the event of an earthquake for example, the media were less likely to consult the BGS and more likely to refer to the United States Geological Survey (USGS) with their 24/7 availability, prompt response to events and rapid dissemination of information. Since 2007, this has changed due to the greater emphasis placed on media engagement by the BGS. As a result the media are more aware that the BGS exists, scientists are accessed more regularly for expert commentary and the BGS is now very much more in the public eye.

The nature of media engagement is changing. The traditional approach of issuing a press release and waiting for the media to get in touch is now less favoured. Alex Aiken, Executive Director for Government Communications, stated recently ‘The press release is dead’ (Kate Magee, 2013). Press officers are now just as likely to get in direct contact with journalists through social media channels such as twitter as they are through traditional communication channels. ‘Journalists often tweet when they are looking for help with an article or case studies’ (Bussey, 2011).

We will:

- maintain the reputation of the BGS as a reliable, professional and objective authority on geoscience-related issues. The BGS will remain an organisation that is trusted to provide definitive unbiased geoscience information for anyone that requests it
- increase the confidence and willingness of BGS scientists and technologists to communicate their work with the media. This will be accomplished through advice, guidance and training, as well as direct experience of working with the media
- meet all reasonable media requests for access to BGS science and technology experts for interviews, comments, features and filming
- respond rapidly to all media enquiries that relate to geohazard events such as earthquakes, landslides, tsunamis, volcanic eruptions, tsunamis, landslides, floods and subsidence
- produce background briefing documents for all geoscience-related stories that regularly feature in the news agenda such as earthquakes, shale gas and groundwater flooding
- continue to issue press releases and statements directly to the media and via the BGS website (www.bgs.ac.uk/news/news.html)
- provide experts for geoscience-related press briefings and conferences, including those facilitated by the Science Media Centre (SMC)
- continue to monitor the coverage of BGS science and technology in the media using online media monitoring services
- continue to organise, and participate in, events at key UK science festivals such as the British Science Festival, the Cheltenham Science Festival and the Royal Society Summer Science Exhibition
- continue to provide support for, and work with, the press offices of other research centres, key geoscience organisations such as the Geological Society, universities and government departments.

4.3 BROADCASTING THE BGS

Vision: Our vision is for broadcasting by video to become the primary means of communicating the scientific and technological research of the BGS.

Overview: Most people learn about current scientific and technological research through the mainstream and web-based broadcast media including:

- the traditional terrestrial TV channels such the BBC, ITV, C4 and Channel 5
- the satellite TV channels such as Sky, CNN, Discovery and Al Jazeera
- the internet based channels, typically on YouTube.

BGS scientists will often be seen on the broadcast news channels in response to natural hazard events such as earthquakes, groundwater flooding, landslides, sinkholes, tsunamis and volcanic eruptions. Less frequently, they will also be seen on broadcast documentary and magazine programmes covering the range of BGS scientific and technological research including: the application of isotope-science to archaeology; carbon capture and storage (CCS); critical metals; geological mapping; geothermal energy; Icelandic glacial retreat; shale gas resources; space weather; and tetrapod evolution. Since 2008, the BGS have broadcast their own videos, through YouTube ([bgschannel](#)), with recent videos such as *About the British Geological Survey* narrated by Professor Iain Stewart (Figure 7), *Tellus South West* and *Tungsten: cutting edge and critical*.



Figure 7 Professor Iain Stewart narrating ‘About the British Geological Survey’ video.

The Nottingham-based film making company, Wide-Cast, will form an integral part of the BGS efforts to capture more of its scientific and technological research on camera. The director of this company, Ed Collard, is a former ITV news journalist and has worked with the BGS since 2007.

We will:

- use video as the primary means for communicating BGS research and technology
- do more filming of BGS research scientists in the UK and whilst working overseas
- develop further the in-house filming and video production capabilities of the BGS
- develop a series of videos that tell the science stories of BGS scientists and technologists
- aim to put BGS on all the major broadcast communication channels.

4.4 IMPACT INFOGRAPHICS

Vision: Our vision is for the impact, and importance to society, of BGS scientific and technological research to be clearly illustrated using infographics and other imagery.

“An infographic is worth a thousand words”

Paraphrasing the famous American newspaper editor, Arthur Brisbane

Overview: Public engagement is an important part of the responsibilities of all BGS researchers who receive public funding. Communicating BGS research is a key requirement of the NERC impact agenda (NERC, 2014). It can take place at any stage throughout the work. The media are just as interested in showing the public the process of research, such as the field, laboratory or other research activities, as they are in explaining the research findings. The impact of scientific research is often obscured by technical jargon in scientific literature, diluted by ineffective dissemination and not understood by those in a position to communicate it more widely. The onus is on research organisations to make its research findings and data more accessible and easier to understand. This is emphasised by the need to demonstrate the impact of research i.e. what relevance does it have to wider society? otherwise known as the ‘so what’ factor. This has assumed greater significance since the economic downturn of 2008 where funding has been much tighter and research has to clearly demonstrate a beneficial impact, in essence to justify the money spent.

A recent BGS publication, the centennial edition of *World Mineral Production 2008–2012*, made substantial use of infographics to illustrate the current production of the major internationally traded mineral commodities. This enables a much clearer understanding of where our mineral resources come from and who the major producers are, as can be seen in the infographic for the worldwide production of antimony (Figure 8).

An infographic is a visual representation of information or data using charts, diagrams or maps. This is a key aspect of ‘data journalism’ which has arisen partly in response to the open data movement (Rogers, 2013). This has seen the release of large volumes of data (‘big data’) by government and other public institutions in the interests of openness and transparency. The aim of the data journalist is to unearth and tell the story hidden in the numbers and information. Often this will involve the use of infographics, at other times a simple number may be sufficient. This has been enabled by the widespread availability of data on the internet and easy-to-use spreadsheet software and has been encouraged by the growing interest in visualising data to make it easier to understand. Many stories have emerged that would not have existed without the data, with Wikileaks being the most notable recent example, prompting the media to look even harder at available data.

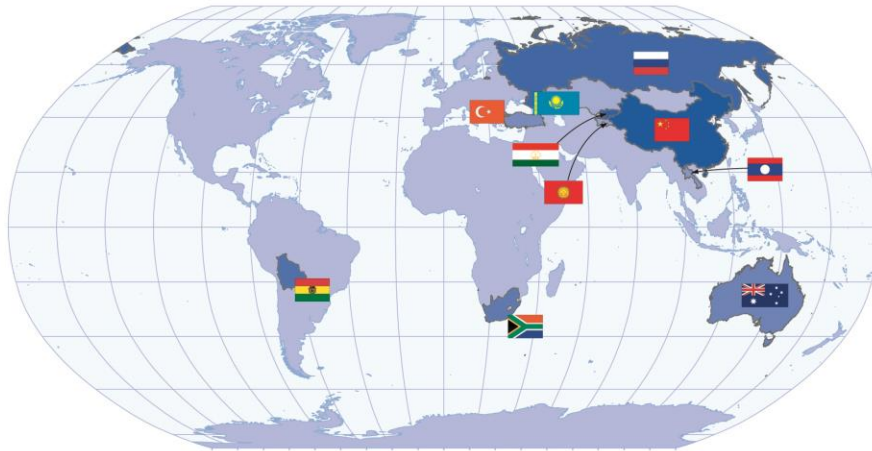
We will:

- increase the use of infographics to improve the understanding of BGS scientific and technological research
- provide infographics that are easily accessible and downloadable for anyone to use
- increase the capacity of the BGS to produce infographics.

Antimony

Symbol Sb

Relative supply risk index
9.0



Top 10 producers % of world total

	China	82%
	Tajikistan	4%
	Russia	4%
	Bolivia	3%
	South Africa	2%
	Australia	1%
	Turkey	1%
	Laos	1%
	Kyrgyzstan	1%
	Kazakhstan	0.5%

End uses



Flame retardants: for plastics and other products



Lead-acid batteries: in transportation, back-up power systems, etc.

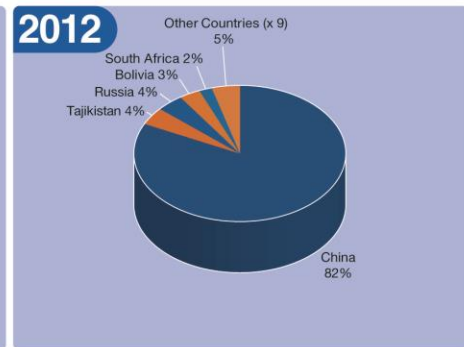
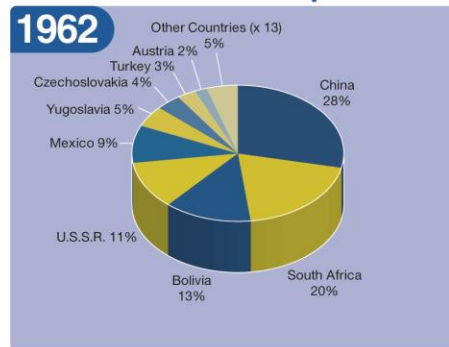


Lead alloys: used in the manufacture of batteries and ammunition



Catalysts: for the manufacture of synthetic textiles and plastic containers

Distribution of world production



World mine production of antimony

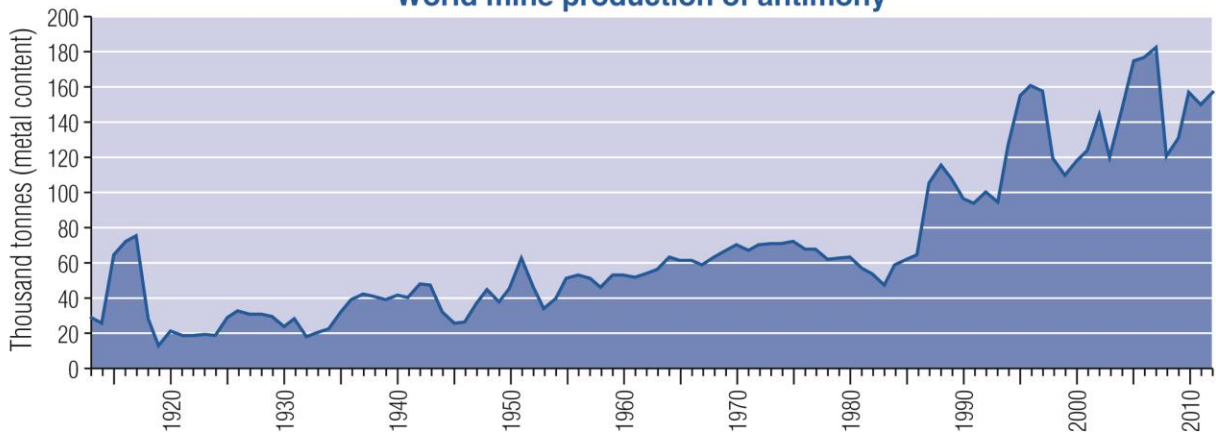


Figure 8 BGS infographic for world Antimony production.

(British Geological Survey, 2012)

4.5 SCIENCE STORIES

Vision: Our vision is to engage a wider audience by telling the science stories of the BGS, showing the human side of research and enthusing the next generation of geologists.

Overview: The traditional communication channel of the scientist is the academic paper. For many this remains, and will remain, the only way that they will ever attempt to communicate their research. Fortunately this is a diminishing band that has been insulated from the need to communicate their work with the wider world. The audience for such work is limited typically to fellow researchers, professionals and students. Wider uptake is limited to those that have access to subscriptions to the journal or the digital version of the paper through institutional access agreements. Open access to research, i.e. that freely available, is on the increase but is often limited to research that is considered significant enough to warrant paying the fees imposed by the journals.

In addition to the broadcast media, most people consume their science through the internet. Currently, the web content of most research institutes is portrayed in a semi-formal, scientific language that is largely factual and is scarcely different to reading an online encyclopaedia. The advent of social media is changing the appetite of the wider world for information of all sorts. There is now an expectation that science will be presented in a format that is much more readily accessible, more engaging and more relevant to people's lives. More emphasis on engaging people with scientific and technological research will lead to the feeling that there is value to scientific research and that future funding is deserved.

We will:

- publish the science stories of BGS scientists and technologists through the BGS website, social media channels (such as *GeoBlogy*) and as broadcast-ready video. These science stories will ideally chart how BGS scientists got to where they are today, their first forays into research, their greatest triumphs, the hiccups along the way and where they are headed next
- encourage BGS scientists and technologists to write their own stories with the assistance of BGS publications
- employ a 'science writer' intern for 3-month periods each year to seek out the stories, write them up and publish them through the BGS communication channels. This will be a regular opportunity for recent media or journalism graduates to gain work experience with a large research organisation
- establish links with science communication, journalism and media departments and courses at UK universities to work collaboratively with the BGS on the stories of geoscience
- aim to get some of the BGS science stories published by the media in their hard copy publications, their online presence and social media channels
- aim to get some of the BGS science stories taken up by the broadcast media. These may lend themselves more to the documentary style productions but may also appeal to some popular TV programmes such as BBC1's *The One Show* and BBC2's *Countryfile*.

4.6 THE WEB

Vision: To create a website that is the first port of call for geoscience information, provides people with what they want, and which can be accessed quickly and easily where ever people may be.

Overview: The BGS website, www.bgs.ac.uk, was started in the early days of the internet (mid-nineties) and has become the ‘shop window’ for the organisation. From the outset it largely reflected the seemingly ever-changing organisational structure of the BGS. As a consequence it evolved organically with content added as the need arose. This led to a situation where the BGS home page eventually became a virtual forest of web links with little regard for the experience of the user. Subsequent redesign and restructuring of the website has taken into consideration what visitors to the website actually want. This has led to a much improved user experience with a focus on new web content, the most sought-after information and data, and areas of science and technology that relate to recent media coverage.

Recent development work on the BGS website has responded to changes in W3C (World Wide Web Consortium) standards, mostly recently HTML5 and CSS3 (the latest versions of Hyper Text Mark-up Language and Cascading Style Sheets). These have enabled more effective ‘mobilisation’ of the BGS web content i.e. easier access via mobile devices. The next big challenge will be to incorporate the ideals of the semantic web which will improve Search Engine Optimisation (SEO), computer-to-computer interactions and ‘data mash-ups’.

We will:

- create and maintain standards-compliant, responsive websites with a consistent corporate design that allows the public to view BGS data and information wherever they are
- be responsive to topical news stories and deliver information from BGS staff quickly and efficiently via www.bgs.ac.uk and its hosted sites
- maintain the range of websites we host and strive to create new content while updating the thousands of webpages on the BGS servers
- create dynamic applications that allow users to search and browse BGS data
- create a top ‘10 photos from the BGS’ website, based on those accessed via Open Geoscience
- make use of new applications to view data in a variety of ways, including ESRI maps for the various BGS datasets
- support the citizen science activities of the BGS
- encourage visitors to the BGS website to have a go at data mash-ups and other out of the ordinary things with BGS data e.g. the ‘earthquake embedded geology’ map
- deliver licensed data via BGS extranets and shops
- add more fun into the *Discovering Geology* web pages, such as spot the dinosaurs lurking in the climate change pages or the ammonites in the *Fossil Focus* pages
- make hosted sites standards compliant and, ideally, device responsive
- put the ‘wonder’ back into the web. Provide surprises to our web users, lead them to unexpected content and onto things they didn’t need to know but that are fascinating.

4.7 SOCIAL MEDIA

Vision: To create a positive reputation and strong brand image for the BGS using social media to facilitate consistent, timely and effective two-way communication between the organisation and the public (including staff and stakeholders).

“... social media involves the building of communities or networks and encouraging participation and engagement”

Chartered Institute of Public Relations Social Media panel

Overview: Content on social media channels is easy to publish, access and share across digital channels and platforms. Yet information and opinion expressed here has the potential to reach far outside the online world. For example, it has quickly become standard practice to use social media content in news reports, parliamentary discussions and courtrooms. It is this increasing popularity and impact of social media as a tool for communication and reputation management that has initiated the business need for a unified BGS social media strategy.

The responsibility for managing social media content and keeping pace with digital and technological changes rests with BGS Corporate Communication and Publishing (Figure 1).

We will:

- create a strong dialogue with all audiences to provide a clear understanding of the organisation’s vision, strategy and values (in line with the BGS science strategy)
- provide timely information on relevant natural hazard events. Events include those covered by BGS monitoring or where we are experts and have appropriate up-to-date online information as well as supporting the citizen science activities of the BGS natural hazards teams
- provide timely information on relevant science meetings, conferences, etc... through close alliance with the Head of Public Engagement and the Business Development team,
- Provide timely, transparent information on any relevant changes that are happening within the BGS
- keep all audiences informed of vacancies and research opportunities available at the BGS
- promote the excellent work, success and achievements of employees within the BGS including the efficient use of resources and the culture of knowledge-exchange excellence in BGS and NERC (in line with the BGS science strategy)
- respond to direct questions posed to the BGS
- involve social media in press office, business development, products and sales campaigns as well as ‘pathways to impact’ plans to enhance and broaden public engagement and impact
- provide training and raise the awareness of BGS staff in the use of social media. Guidelines for the use of Social Media by BGS staff are shown in Appendix 2
- create a dynamic relationship between social media content and BGS website content, for example, promoting links to new web content where appropriate and featuring social media feeds on relevant webpages.

4.8 PUBLICATIONS

Vision: To create a novel digital publication channel, alongside the traditional print channels, to publish the excellent world-class scientific and technological research of the BGS.

Overview: The BGS publications team provides an editorial service for all aspects of publishing in BGS including the website, digital publications and print. The team provides publishing advice and guidance to all staff and implements the BGS publication strategy. The key aims of the BGS publication strategy are to:

- enhance peer-reviewed paper output and impact in order to ensure the entire BGS science programme is underpinned by good peer-reviewed science
- capture, share and synthesise more of the scientists' implicit knowledge
- write (create content) once, re-use many times
- develop stronger semantic and spatial links between publications, maps, models and data
- respond flexibly to the diverse demands of our stakeholders, new cultural trends and new technologies in the world of publishing
- encourage greater community feedback and contributions to BGS publications.

We will:

- assist the development of a publication strategy which will be devised, owned and directed by a publication strategy group. This will comprise representatives of the BGS Executive, the directors of science and technology, and the Corporate Communications and Publications Team
- assist with setting of BGS publication priorities by the publication strategy group, in consultation with the directors of science and technology
- assist BGS in continuing to publish its research findings in peer-reviewed journals
- develop and implement an intelligent publications (iPubs) approach to publishing BGS research using a MediaWiki platform. This will create a new publication channel for the BGS. It will allow easy publication of detailed, rich web content; provide a user-friendly interface for staff to create and edit new documents; allow the BGS to develop the 'write once, re-use many times' approach to authoring; and help the BGS make its static content available semantically
- develop and implement an internal system, GeoSource, to enable staff to publish their research. Material in GeoSource will be added to the external BGS web presence via a GeologyWiki which will promote the BGS brand and allow BGS authors to be credited with their work. In addition, managed contributions by members of the wider research community will be enabled
- assist with the production of special publications. These will be digital, e.g. eBooks or iMaps, as well as traditional printed hard copy. Special publications will be chargeable e.g. on download, print or DVD delivery
- assist with the production of commercial reports as required by BGS clients.

4.9 PUBLIC ENGAGEMENT

Vision: We will actively work with a range of communities within schools, colleges, universities and the general public to promote geoscience as a career choice and to explain BGS research.

Overview: BGS has multiple strands of well-established public engagement activities to engage with our target audiences. These audiences and activities include:

- schools (school visits, visits by schools to BGS including National Science and Engineering Week, educational science fairs and exhibitions, UK School Seismology project)
- universities and colleges (site tours, on-site workshops)
- public (site tours and open days, off-site talks)
- stakeholders (provide advice, input and resources into stakeholder projects).

Website: *Discovering Geology* will support learning with the above audiences by providing a range of curriculum-based activities and resources.

All staff will be encouraged to take part in public engagement activities to demonstrate their own area of science or to support other science areas. BGS public engagement managers will help support activities that fulfil the above vision and will assist by providing advice, physical resources, ideas for activities and web pages that offer further information.

We will:

- facilitate visits to local schools by providing specialists or ‘science demonstrators’
- run a regular programme of site tours
- run a schools and public event annually for National Science and Engineering Week
- assist in BGS Open Days in Keyworth and Edinburgh
- produce a range of curriculum-based resources and activities for the *Discovering Geology* section of the BGS website
- maintain links with geoscience organisations, groups and clubs listed below and to provide advice and resources where appropriate: British Science Association, British Geophysical Association, Earth Science Education Forum, Earth Science Teachers Association, Earth Science Education Unit, earth science museums, galleries and visitor centres, Geological Society, and Rockwatch (Geologists Association) the national club for young geologists
- run the UK Schools seismology project, which will:
 - maintain and widen the network of existing participating schools
 - provide advice, training and continuing personal development (CPD) for teachers
 - attend science fairs and exhibitions to promote participation
 - provide web resources in *Discovering Geology*
 - maintain and develop links with university geoscience department outreach programmes
 - maintain and develop links with (non-school) external groups, museums and visitor centres e.g. geopark networks and Natural History Museum London
 - develop international relations and provide training and resources
 - maintain existing external funding streams.

4.10 INTERNAL COMMUNICATIONS

Vision: To create a more successful, positive and resourceful community within the BGS by effective and consistent communication (both one-way and two-way) between the Executive and staff.

Overview: The Internal Communications (IC) function at BGS was initiated in April 2013 as part of BGS Corporate Communication and Publishing (Figure 1). One of the first IC initiatives was to reduce the amount of corporate email correspondence that circulated internally within the BGS. The bgs corporatecomms@bgs.ac.uk email account is used to channel all corporate and other messages intended for circulation to the whole organisation. These are amalgamated into a single *Daily Brief* which is emailed to BGS staff at around 11am daily. Verbal and written feedback from staff has been encouraging and positive.

The BGS intranet is an integral part of internal communication within the organisation. In order to improve uptake of its use across all the BGS sites, a staff survey will be carried out and the intranet will be redeveloped to improve its functionality, look, content and usefulness.

Another successful initiative of BGS IC has been the creation of the monthly newsletter, *Core Matters*. This is an html formatted email that is sent to all BGS staff and contains a mixture of corporate information, good news stories, BGS in the media, BGS staff charity activities and other stories of interest to BGS staff.

Two-way communication with the Executive is paramount. IC has introduced more face-to-face Q&A sessions with the Executive and encourages staff to act upon the Executive's open-door policy. Staff notices will continue to be used as the formal means of communicating matters of strategy, policy and process to all staff.

We will:

- provide all employees with a clear understanding of the BGS vision, strategy and values
- keep staff informed of any major changes that are happening within the BGS as quickly and transparently as possible
- recognise and empower employees within the BGS
- provide employees with the information and resources needed to fully participate in organisational activities during their evolving career at BGS
- promote and enhance a positive sense of community across the BGS, and help to engage employees
- ensure a positive employee experience by providing improved information on general company initiatives e.g. Athena SWAN and Future Leaders.
- create a more successful organisation and encourage more efficient use of resources, in line with BGS strategy to encourage a culture of knowledge-exchange excellence in the BGS and the NERC
- improve perceptions and highlight and support organisational change
- celebrate successes, achievements and service to ensure employees feel valued
- provide all employees with the means to communicate feedback to the Executive as and when they wish.

5 Conclusions

The public profile of the BGS has been successfully raised since the creation of its communications team in 2007 with a significant increase in media coverage, the number of visitors to the BGS websites and engagement with its social media channels. The BGS science strategy, *Gateway to the Earth: Science for the next decade* (BGS, 2014), sets the basis for the communication agenda until 2024. It has the vision of BGS becoming a global geological survey with a focus on new technologies, responsible use of natural resources, management of environmental change and resilience to environment hazards.

The communication of BGS science and technology to its main audiences (the public, government and other decision makers, industry and private business, academia, BGS staff and the wider NERC community and the media) will be largely via the broadcast media and the internet. In order to engage these audiences it will be necessary to bring out the narratives in the science, use images and infographics to enable a clearer understanding of the research impacts and put real scientists in front of the camera to explain what they do directly to the world.

The BGS communication vision is to ‘establish the British Geological Survey as a global authority for geoscience’. The BGS will achieve this by:

- becoming the ‘go-to’ organisation, the first point of contact, for all geoscience related news events in the UK, and a leading contact point for the global news media
- using broadcast-quality video to communicate the scientific and technological research of the BGS
- using infographics and other imagery to clearly illustrate the impact of the scientific and technological research of the BGS, the benefits to society and its global importance
- engaging a wider audience by telling the science stories of the BGS, showing the human side of research and enthusing the next generation of geologists
- creating a website that is the first port of call for geoscience information, providing people with what they want quickly and easily wherever they may be
- creating a positive reputation and strong brand image for the BGS using social media to facilitate consistent, timely and effective two-way communication between the organisation and the public (including staff and stakeholders)
- creating a novel digital publication channel, alongside the traditional print channels, to publish the excellent world-class scientific and technological research of the BGS
- actively working with a range of communities within schools, colleges, universities and the general public to promote geoscience as a career choice and to explain BGS research
- creating a more successful, positive and resourceful community of researchers within the BGS by effective and consistent two-way communication between the Executive and staff.

Appendix 1 Media coverage highlights 2012 to 2014

Significant media stories featuring scientists from the BGS from March 2012 to March 2014:

‘Age of oldest rocks off by millions of years’ New Scientist 29th March 2012
<http://www.newscientist.com/article/dn21644-age-of-oldest-rocks-off-by-millions-of-years.html#.UzrJCfJOXcs>

‘Indian Ocean tsunami alert lifted after Aceh quake’ BBC Online 11th April 2012
<http://www.bbc.co.uk/news/world-asia-17675399>

‘Devon mine is focus of global trade war for tungsten’ The Telegraph 15th April 2012
<http://www.telegraph.co.uk/finance/commodities/9205528/Devon-mine-is-focus-of-global-trade-war-for-tungsten.html>

‘Abandoned Glasgow mines could provide 40% of city heat’ BBC Online 19th April 2012
<http://www.bbc.co.uk/news/uk-scotland-glasgow-west-17769365>

‘Huge’ water resource exists under Africa’ BBC Online 20th April 2012
<http://www.bbc.co.uk/news/science-environment-17775211>

‘Drought and record rainfall, indoor avalanches’ Planet Earth Online 8th May 2012
<http://planetearth.nerc.ac.uk/multimedia/story.aspx?id=1219&cookieConsent=A>

‘Squid ink from Jurassic period identical to modern squid ink, U.Va. study shows’ Heritage Daily 22nd May 2012 <http://www.heritagedaily.com/2012/05/squid-ink-from-jurassic-period-identical-to-modern-squid-ink-u-va-study-shows>

‘Woman feared dead after cliff crashes down on to coastal path’ The Independent 25th July 2012
<http://www.independent.co.uk/news/uk/home-news/woman-feared-dead-after-cliff-crashes-down-onto-coastal-path-7973442.html>

‘Solar activities and eruptions affecting Earth technology’ Irish Times 6th September 2012
<http://www.irishtimes.com/news/solar-activities-and-eruptions-affecting-earth-technology-1.526345>

‘2012 has seen an ‘unprecedented’ year of weather swings, say experts’ Mail Online 19th October 2012 <http://www.dailymail.co.uk/news/article-2220111/British-weather-Experts-acknowledge-year-unprecedented-changing-weather.html?ito=feeds-newsxml>

‘Weather: Landslide Alert Amid Floods And Rain’ Sky News 26th December 2012
<http://news.sky.com/story/1030209/weather-landslide-alert-amid-floods-and-rain>

‘As if snow wasn't enough: earthquake hits East Midlands’ The Independent 18th January 2013
<http://www.independent.co.uk/news/uk/home-news/as-if-snow-wasnt-enough-earthquake-hits-east-midlands-8456714.html>

‘Who, What, Why: How are sinkholes formed?’ BBC Online 4th March 2013
<http://www.bbc.co.uk/news/magazine-21600410>

Appendix 1 continued

‘Fossil hunters dig deep in Scottish Borders’ The Scotsman 1st April 2013

<http://www.scotsman.com/news/environment/fossil-hunters-dig-deep-in-scottish-borders-1-2881461>

‘Fossil finds in Leicestershire 'absolutely world class'’ BBC Online 4th May 2013

<http://www.bbc.co.uk/news/uk-england-leicestershire-22359896>

‘UK shale gas resources 'greater than thought'’ BBC Online 27th June 2013

<http://www.bbc.co.uk/news/business-23069499>

‘Weatherwatch: A record year for landslides?’ The Guardian 13th July 2013

<http://www.theguardian.com/news/2013/jul/14/weatherwatch-landslides-rain>

‘Number of landslides hitting Britain up fivefold in a year: Heavy rainfall blamed for increase in incidents’ Mail Online 11th September 2013 <http://www.dailymail.co.uk/news/article-2418047/Number-landslides-hitting-Britain-fivefold-year-Heavy-rainfall-blamed-increase-incidents.html>

‘Welcome to Britain's EARTHQUAKE capital: Sleepy Nottinghamshire town has been hit by 36 tremors in just 50 days - and geologists say mining is to blame’ Mail Online 29th January 2014

<http://www.dailymail.co.uk/news/article-2548146/Welcome-Britains-EARTHQUAKE-capital-Sleepy-Nottinghamshire-town-hit-36-tremors-just-50-days-geologists-say-mining-blame.html>

‘UK Floods Could Last Months, Scientist Warns’ Sky News 11th February 2014

<http://news.sky.com/story/1209623/uk-floods-could-last-months-scientist-warns>

‘Why sinkholes are swallowing Britain’ The Telegraph 18th February 2014

<http://www.telegraph.co.uk/news/uknews/10646456/Why-sinkholes-are-swallowing-Britain.html>

‘Shale gas wells could leak and contaminate water supplies, report warns’ The Telegraph 25th March 2014 <http://www.telegraph.co.uk/earth/energy/fracking/10720253/Shale-gas-wells-could-leak-and-contaminate-water-supplies-report-warns.html>

Appendix 2 Social media guidance for British Geological Survey staff

Social media is a great way to communicate BGS science, activities, achievements and services. This guidance is for BGS staff using social media as a way to communicate BGS science and technology. This guidance is based on the [Social Media Guidance for Civil Servants](#) (Cabinet Office, 2012) the [NERC Electronic Communications Policy](#) (NERC, 2013d) and the NERC Code of Conduct.

Seven top tips:

- Learn by example. Look at people already using social media to see best practices.
- Enjoy it. Get your team involved. Think of interesting and fun things to share. Engaging with the online community can be rewarding and impact positively on society and your work.
- Participate frequently. For microblogs (e.g. Twitter) that's daily or weekly, for blogs (e.g. Blogger) that's weekly or monthly – minimum.
- Post photos, comments and links to websites and articles. Ask questions, respond to other users, share content and don't be afraid of adding an appropriate level of humour.
- Do not engage with ANY users who are aggressive or abusive. Accounts that try to initiate negative responses from you are referred to as 'Trolls', ignore them.
- If you use your personal account to talk about work be aware the online audience includes journalists and your peers. If in doubt about the appropriateness of previous content have a clean-up or start a new account.
- New branded BGS social media channels will be set up and operated with the authorisation of the appropriate Director of Science or Technology and in consultation with BGS Corporate Communications & Publications. These are purely for communication of BGS science and information. They are, and will remain, the property of the BGS.

Seven rules to remember:

- BGS staff using social media must act with integrity, honesty, objectivity and impartiality.
- Avoid commenting on government policies & practices, controversial issues, personal attacks and politics. Postings considered inappropriate may result in disciplinary action.
- BGS's computing facilities must not be used to distribute material which might reasonably cause offence or be considered socially unacceptable or embarrassing to yourself or others.
- Unless authorised to do so, staff must not give the impression that they are speaking on behalf of the BGS in personal websites or blogs. Phrases such as 'BGS employee but views my own' should be used (although this is not recognised as legal defence).
- Posting information which is privileged or has been supplied in confidence is not acceptable. Permission should be obtained before posting photos or video taken by other people.
- Staff are permitted to use their own personal social media channels to communicate their work for the BGS. A personalised mix of work and non-work related postings is acceptable as long as these conform to these guidelines. The careful addition of sensible personal postings will help to make your social media engagement more interesting and effective.
- Check the accuracy and sensitivity of your comments, use your common sense, if unsure either seek advice or don't post.

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