

Geodiversity, Society and the International Geodiversity Day

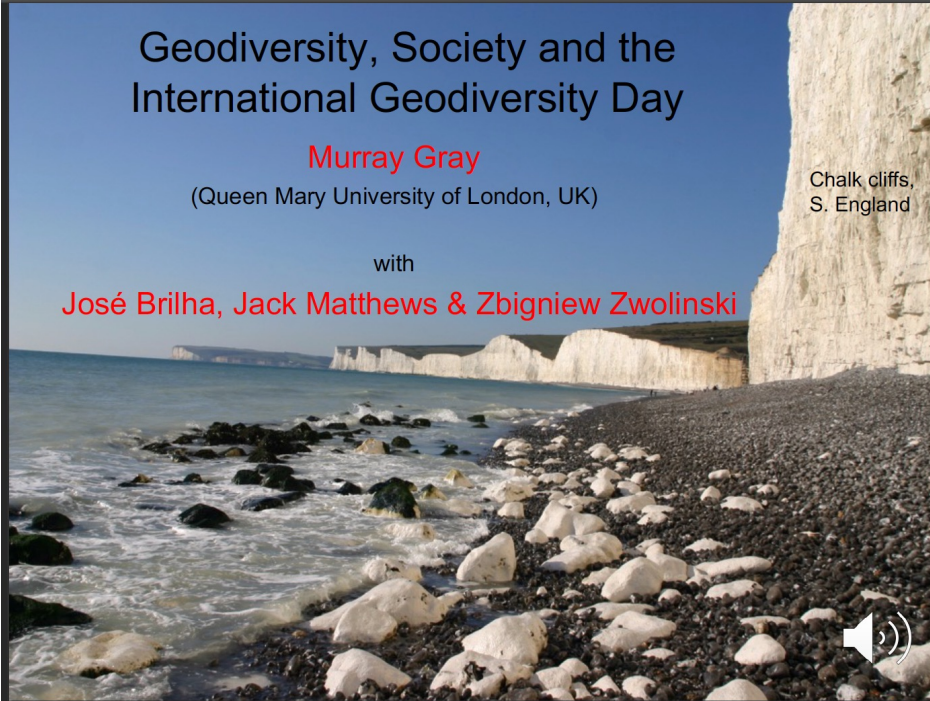
Murray Gray

(Queen Mary University of London, UK)

with

José Brilha, Jack Matthews & Zbigniew Zwolinski

Chalk cliffs,
S. England



Earth: third rock from the Sun

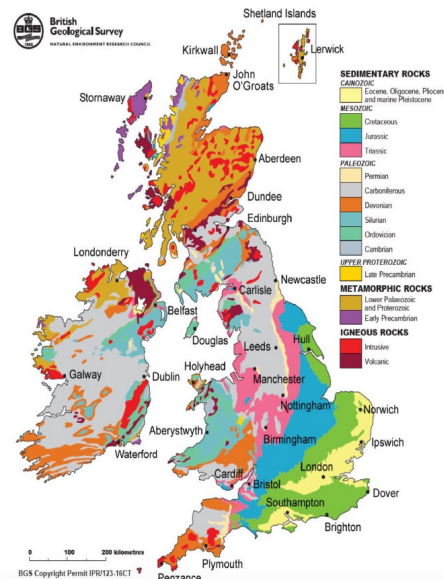
(with a surface cover of atmosphere, oceans and life)

13,000 km in diameter

moving at 100,000 km/hr around the Sun



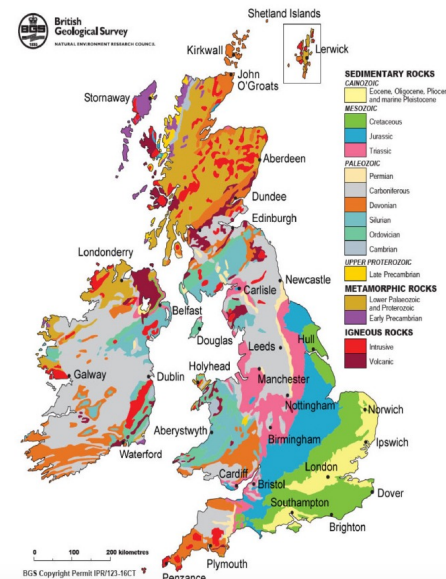
A Geodiverse Planet



e.g. Britain & Ireland,
have a long and complex
geological history.



A Geodiverse Planet



e.g. Britain & Ireland,
have a long and complex
geological history.

- + Quaternary & Soils
- + Topography & Landforms
- + Processes & Hydrology

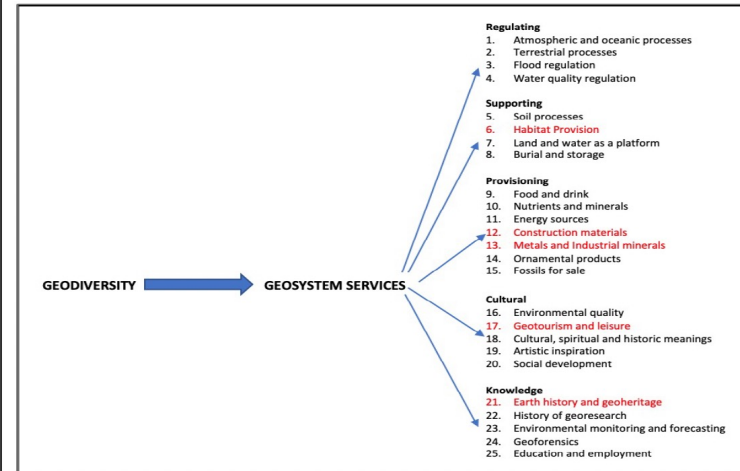


Geodiversity

- Geodiversity (geoscientific diversity) is the variety of non-living nature;
- c.5000 named minerals;
- hundreds of named rock types;
- millions of fossil species;
- 19,000 named soil types in USA;
- huge diversity of processes - tectonic, volcanic, fluvial, coastal, glacial, aeolian, hydrological, weathering, etc.
- huge variation in topography and physical landscape character



How does geodiversity benefit society?



Source: Chakraborty, A. & Gray, M. (2020) *J. Nature Conservation*.



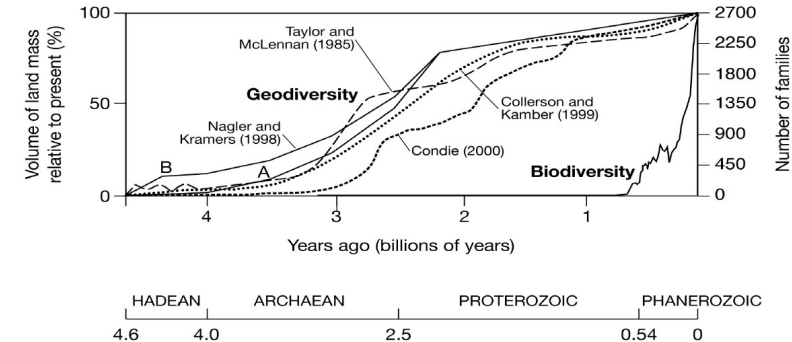
6. Habitat provision



Hence the need for **Conserving Nature's Stage**



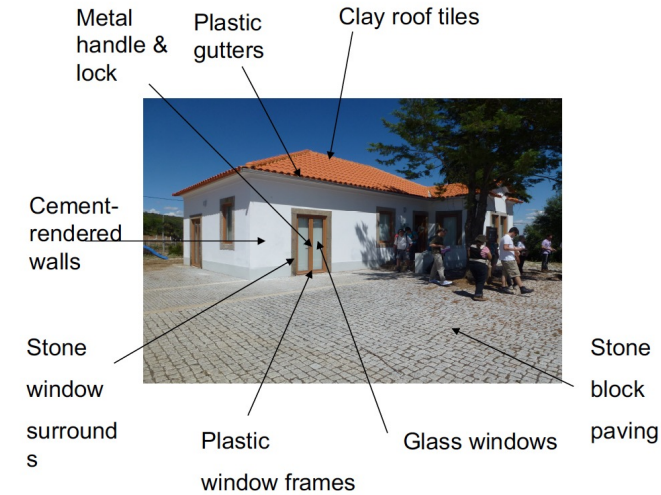
Evolution of Geodiversity & Biodiversity



12. Construction materials

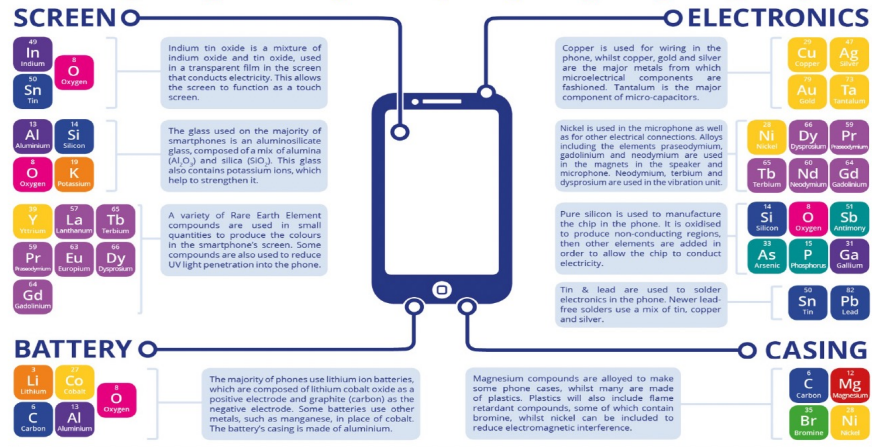


Geology Museum, Terras de Calvaleiros UGGp, Portugal



ELEMENTS OF A SMARTPHONE

ELEMENTS COLOUR KEY: ALKALI METAL, ALKALINE EARTH METAL, TRANSITION METAL, GROUP 13, GROUP 14, GROUP 15, GROUP 16, HALOGEN, LANTHANIDE



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17. Geotourism & Leisure



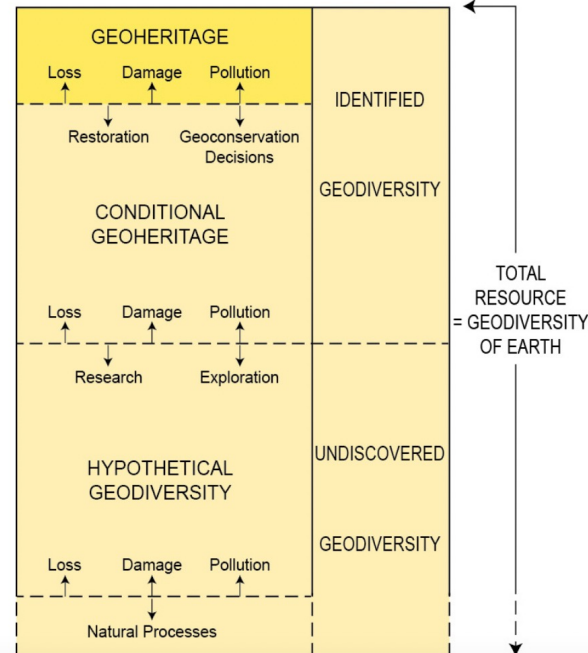
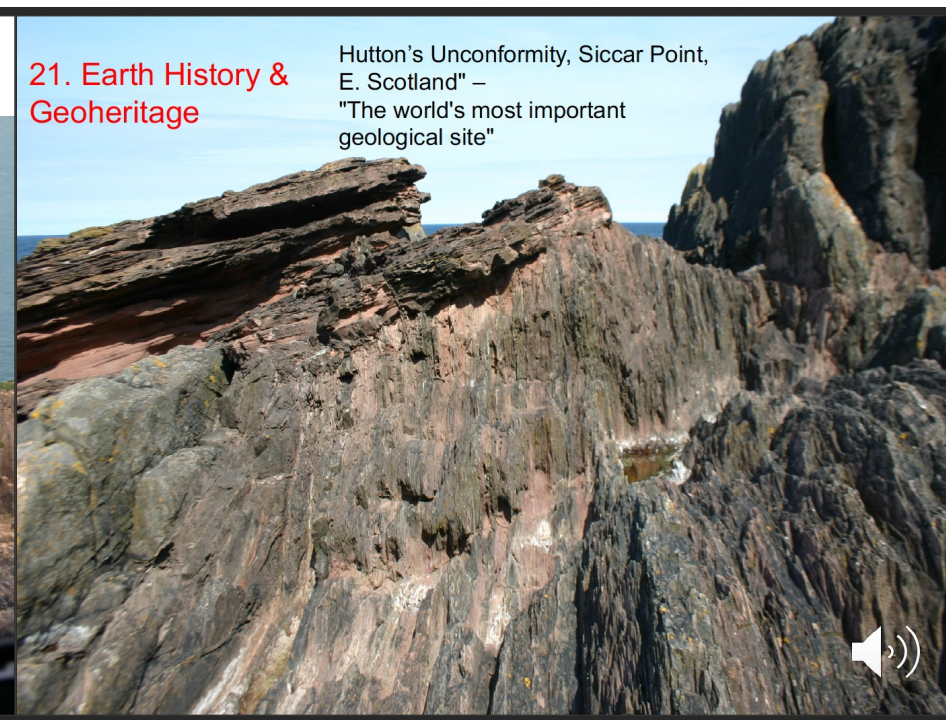
Smartphones contain over 80% of the non-radioactive elements in the periodic table, some of which are rare and difficult to recycle.

Hong Kong UGGp



21. Earth History & Geoheritage

Hutton's Unconformity, Siccar Point, E. Scotland" –
"The world's most important geological site"

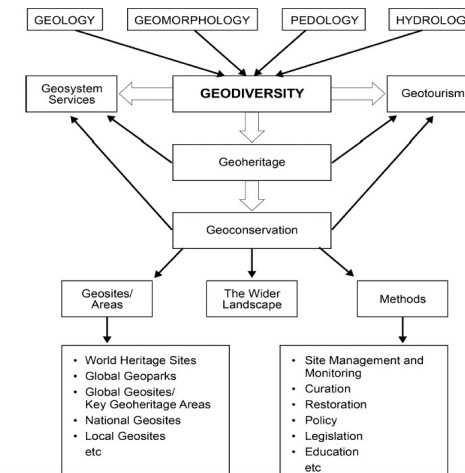


Geoheritage

"those parts of the planet's geodiversity that may be specifically identified as having geoconservation significance" (Sharples, 2002)



"Geodiversity deserves to have an absolutely central position in the relationship between geology, geoheritage, geoconservation, geotourism and geosystem services" (Gray & Gordon, 2020)



International Geodiversity Day (IGD)

- Given this importance, four of us have been working to establish an IGD through UNESCO:
- José Brilha (University of Minho, Portugal)
- Murray Gray (Queen Mary University of London, UK)
- Jack Matthews (Oxford University Natural History Museum, UK)
- Zbigniew Zwolinski (Adam Mickiewicz University in Poznan, Poland)
- www.geodiversityday.com



- The United Nations General Assembly and its specialised agencies, including UNESCO, designate "International Days" to mark important aspects for society.
- Each international day is a springboard for raising awareness of the theme of the day, with the involvement of governments, public and private sectors, NGOs, the media, schools and universities and, importantly, the general public.



Support

- With the support of over 100 geoscience organisations, we contacted IUGS, as it is affiliated to UNESCO, and asked IUGS to support us and send the letters to UNESCO requesting it to establish the Day;
- IUGS agreed and we then moved on to seeking support from UNESCO Member countries;
- The original proposers of the IGD paper were Portugal and the UK but it has now garnered support from 75 countries:
Algeria, Andorra, Argentina, Armenia, Australia, Austria, Azerbaijan, Bangladesh, Belarus, Botswana, Brazil, Bulgaria, China, Colombia, Costa Rica, Croatia, Cuba, Czech Republic, Dominican Republic, Ecuador, Ethiopia, France, Gabon, Greece, Grenada, Honduras, Hungary, Iceland, Indonesia, Iran, Italy, Ivory Coast, Jamaica, Japan, Jordan, Kuwait, Kyrgyzstan, Lebanon, Libya, Luxembourg, Madagascar, Mauritania, Monaco, Morocco, Mozambique, Nicaragua, North Macedonia, Myanmar, Oman, Paraguay, Philippines, Poland, Portugal, Romania, Russia, Saint Vincent and the Grenadines, Saudi Arabia, Slovakia, South Africa, South Korea, Spain, Syria, Tanzania, Togo, Tunisia, Turkey, Ukraine, United Arab Emirates, United Kingdom, Uruguay, Uzbekistan, Venezuela, Vietnam, Zimbabwe,



The First IGD

- The UNESCO Executive Board unanimously supported the proposal.
- And last November, it was approved by UNESCO's General Conference.
- So we should all now plan to celebrate the 1st International Geodiversity Day on **6th October 2022**.
- Why 6th October?
 - We wanted a spring or autumn date so as to allow field activities in both hemispheres.
 - October was the month when a publication first used the term 'geodiversity' (Chris Sharples, Tasmania, October 1993).
 - 6th October was the first date in the month free of other international days.

General Conference : 41st session 9-24 November 2021

Point 8.14 de l'ordre du jour 41 ^e CS	Item 8.14 of the provisional agenda 41 st CS
PROCLAMATION D'UNE JOURNÉE INTERNATIONALE DE LA GÉODIVERSITÉ	PROCLAMATION OF AN INTERNATIONAL GEODIVERSITY DAY
La Conférence a approuvé. Réviser la Résolution 211 (XIX) 37.	The General Conference Reaffirming 211 E/Discussion 37.
Après examen du document 41/C2/8, Considérant la plus récente reconnaissance de la géodiversité et des géosciences dans le monde et un engagement de leur engagement pour essayer de relever les défis dans des domaines tels que la gestion des ressources naturelles, le changement climatique, l'énergie et le développement durable, ainsi que pour améliorer la qualité de la vie et le bien-être des peuples et le développement.	Having examined document 41/C2/8, Considering that greater global awareness of, and enhanced education in, geodiversity and geoscience are vital to address challenges in areas such as natural resource management, climate change, energy and sustainable development, and to improve the quality of life in both the developed and the developing worlds, Deciding that geodiversity underpins livelihoods, providing the foundations and habitats for all living things, and has an essential role for human well-being and for sustainable management of the world.



Activities

- International Geodiversity Day will enable coordinated activities to take place worldwide. Bringing together people, communities, organisations, and countries across the world, it is expected that International Geodiversity Day will include:
- Field trips to important geosites, promoting the conservation of geoheritage;
- Raising awareness of the critical link between geodiversity and biodiversity;
- Promoting the understanding of how society benefits from living on a geodiverse planet;
- Promoting the importance of the sustainable use of georesources;
- Supporting programmes and projects aimed at creating and managing geoparks and other protected areas;
- Geoeducation activities – lectures, conferences, museum visits, geotrails, etc;
- Magazine and newspaper articles;
- Promoting the variety of professional careers in the geosciences.

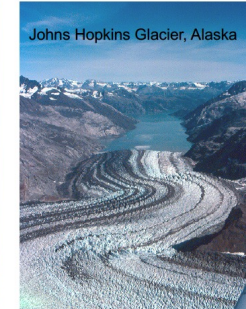


Conclusions

1. Our planet has an incredible and magnificent geodiversity;
2. This ought to be more widely understood and celebrated, because it can enrich our lives and, quite simply, our modern society couldn't live without it.
3. So **value geodiversity every day, but particularly on IGD from 2022.**



Mt Fuji, Japan
Photo: Abhik Chakraborty



Johns Hopkins Glacier, Alaska



Thank you for listening...

...and thanks to:

- Participants at the Oxford Virtual Geoheritage Conference (May 2020);
- IUGS;
- Kristof Vandenberghe & Özlem Adiyaman Lopes (UNESCO Geoscientists);
- All supporting organisations and individuals;
- All co-sponsoring and supporting Member States;
- The UNESCO Commissions & Delegations of Portugal & UK

Want to read more about Geodiversity?

Gray, M. (2013).

*Geodiversity: valuing and
conserving abiotic nature.*

2nd edition.

Wiley Blackwell, UK

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