# INFORMATION TECHNOLOGIES AND SOCIAL MEDIA: NEW SCIENTIFIC METHODS FOR THE ANTHROPOCENE

# Gaetano Sabato, Joan Rosselló (Editors)



# Preface by Javier Martín-Vide





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The book series "Geographies of the Anthropocene" edited by the International Scientific Publisher "Il Sileno" (Il Sileno Edizioni) will discuss the new processes of the Anthropocene epoch through the various worldviews of geoscientists and humanists, intersecting disciplines of Geosciences, Geography, Geoethics, Philosophy, Socio-Anthropology, Sociology of Environment and Territory, Psychology, Economics, Environmental Humanities and cognate disciplines.

Geoethics focuses on how scientists (natural and social), arts and humanities scholars working in tandem can become more aware of their ethical responsibilities to guide society on matters related to public safety in the face of natural hazards, sustainable use of resources, climate change and protection of the environment. Furthermore, the integrated and multiple perspectives of the Environmental Humanities, can help to more fully understand the cultures of, and the cultures which frame the Anthropocene. Indeed, the focus of Geoethics and Environmental Humanities research, that is, the analysis of the way humans think and act for the purpose of advising and suggesting appropriate behaviors where human activities interact with the geosphere, is dialectically linked to the complex concept of Anthropocene.

The book series "Geographies of the Anthropocene" publishes online volumes, both collective volumes and monographs, which are set in the perspective of providing reflections, work materials and experimentation in the fields of research and education about the new geographies of the Anthropocene.

"Geographies of the Anthropocene" encourages proposals that address one or more themes, including case studies, but welcome all volumes related to the interdisciplinary context of the Anthropocene. Published volumes are subject to a review process (**double blind peer review**) to ensure their scientific rigor.

The volume proposals can be presented in English, Italian, French or Spanish.

The choice of digital Open Access format is coherent with the flexible structure of the series, in order to facilitate the direct accessibility and usability by both authors and readers.

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#### Introduction

#### Gaetano Sabato<sup>1</sup>, Joan Rosselló<sup>2</sup>

The Anthropocene has been defined as a time when the world has undergone "the great acceleration". Acceleration in terms of population growth, increasing rates of urbanisation, the globalisation of the economy, the emergence of mass tourism, and other effects of the Anthropocene that have all had an impact on the world.

Many of the effects taking place during this epoch have negative connotations although there are positive elements and one of them is technological advances. According to Stoermer and Crutzen, technological improvements began in 1784 when James Watt perfected the steam engine and the industrial revolution began. Since then, a multitude of inventions has enabled the advancement of humanity up to the present day. Technology has had an impact on medicine, communications, people's daily lives and also on the way science is done.

However, it cannot be overlooked that the rapid and widespread diffusion of technology has consequences also on the epistemology of the various disciplines. From problems related to the collection and processing of data to ethics on their use, all of which constitutes an obstacle that researchers have to face more and more often. Hence the need for an honest and open reflection from different points of view and approaches that brings together a polyphony of voices in an attempt to understand "how much" and "what" use of technology we can (or we want to) let enter our research work.

It is in this sense that the volume presented here aims to show how different ways of doing science have changed thanks to technological advances. However, these chapters do this in the awareness that any use of technology poses problems of method until the necessary epistemological rethinking of models and practices occurs.

Our intention with the book is to consider how digital and IT technology and social media have affected scientific research in different fields, and this is reflected in the title: "Information Technologies and Social Media: New Scientific Methods for the Anthropocene". The received contributions come from various fields of study and offer different perspectives, from theoretical

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essays to practical applications and provide an overall vision about how technology has changed research dynamics.

The volume has been divided into four sections; the first is devoted to the use of social media as a research tool; the second is related to the application of technology within the humanities study field, while the third section shows the use of technology as a practical application for flood-related research. Finally, a fourth section offers a glimpse of multidisciplinary research in the Anthropocene.

Section one, titled "Social Media and Research" is made up of three chapters. The first, written by Gaetano Sabato, describes the ways in which it is possible to conduct online research from a cultural geography perspective into a Facebook group dedicated to the geo-historical reconstruction of urban spaces (Palermo, Italy) in a form of "participatory geography". Based on previous research conducted by the author, the chapter leads to a reflection on the method used, to discuss the possibilities and criticalities that social medias offer to researchers, making them an object of study but also a means of study. In the second chapter, Stefano Montes focuses on Facebook as a real and true form of fieldwork, to investigate the everyday and its digital connections. By questioning the traditional conceptions of place-based ethnography and turning to an on-and-off digital research, he highlights some important features belonging to fieldwork as a reflexive phenomenon. A primary concern in his paper is to show how the digital world, by impacting on ethnographic methods, has also had effects on some evolving notions such as simulation, technology, authorship and ethnography itself. The third chapter, written by Marianna Boero, addresses, from a semiotic perspective, another delicate question: the way in which scientific discourse is articulated today on various social media both in the mainstream and in those dedicated to researchers. Moreover, the scholar discusses the issues of the reliability of information sources and the role of the "experts" in the construction of the scientific discourse accessible to the public.

In section two, called "Humanities and technology", there are two chapters. The first one, from Antoni Quetglas, offers a vision of how historians can do research from their desk without physically accessing an archive, which is often located in another country. Such online archives are used to study a migration process affecting a small town of Mallorca, which is related to a current historical method, known as "microhistory". On the other hand, the chapter from Morey, Palou and Rosselló highlights the use of technology within the classroom in a secondary school in Palma de Mallorca. The authors explain how the COVID outbreak impacted the teaching structure and how both students and teaching staff had to adapt sooner rather than later to the

emergence of online courses and how this has changed the way to teach and learn.

Section three is titled "Practical application of technology" and includes two chapters. The one from Llasat and Llasat shows how a mobile phone application can help a flood-related research, allowing the app users to upload photos of events along with the geographical location of the flood. It is also an example of "social science", when user's data allow the researchers to improve their knowledge by receiving data that, sometimes, could be missed. The chapter from Stamataki and Kjeldsen offers another view of how technology has changed research. The use of digitalised data from archives helps to identify flood events along a catchment and a combination of statistics and "social science" allows the correct mapping of the distribution of flooded waters across the city of Bath in the United Kingdom.

Finally, section four is titled "Multidisciplinary research" and comprises three chapters. The one from Francesco Mele, Antonio Sorgente and Paolo Vanacore focuses on another wide-ranging topic for a multidisciplinary reflection: Artificial Intelligence. The authors study the manner in which AI has improved the methodological apparatus of the human, social and natural sciences, such as linguistics, cultural heritage, medicine and jurisprudence. More specifically, the chapter discusses the problem of technological unpredictability, some critical issues of AI systems, such as their unexpected results, without neglecting problems of regulation and opacity and finishes with a prediction of the future of these systems.

The second chapter, by Gian Luigi Corinto, using a geographical approach applied to the artistic field, starts from a grounded case (the painting exhibition *Raging Babies*, put to music by digital musicians) to show how studies on/with visual and musical artists who usually use the internet and ICT can shed new light on traditional geographical topics such as space/time and place/identity. Indeed, the author discusses the way in which the artists use ITC and the Internet to form collaborative networks, also reporting focused conversations with them and reflecting on the effects on geographical research undertaken by the scholar himself.

In the third chapter of this section, Alfonso Di Prospero, based on the fact that the pandemic period implied a large use of the digital technologies for communication, proposes a reflection from a philosophical perspective. Considering various cases and examples, the author investigates the underlying structure of a model of culture inside which the process of spreading the new forms of communication occurs in a more convenient way. Within the debate about the right use of new technologies, Di Prospero highlights how it is fundamental to focus on the structure of meaning that forms the content of communication instead of the technical nature of the devices.

Those chapters contribute to spread the knowledge of how the use of technology improves the research in different scientific areas and the Editors hope they can help researchers to obtain a new vision of the possibilities of the advanced technology in their fields of study. The volume also offers to the readers some different approaches to do science which exist nowadays. These are often complementary points of view and approaches that underline the complexity of any "discourse" (in Foucault's terms) on technology and its use. This is a complexity that inevitably also poses profound epistemological problems, as fascinating as they are necessary, for a scientific meta-reflection, projected on both sides of the individual disciplinary outlooks.

In thanking all the authors who have partecipated with enthusiasm and commitment in this work, the wish that the editors address to readers is therefore to that they find interest in the many points of connection and perhaps even opposition in the intersection of perspectives that this book reveals; with the awareness that as soon as a problematic issue has been discussed, it gives way to another.

The development of technology during the Anthropocene has affected science and the ways of "doing science". Nowadays, new technologies help scientists of several disciplines by facilitating knowledge and how to manage it, but also allow for collaborative science, the so-called "Social Science", where everyone can be a scientist and be involved in providing data and knowledge by using a computer or a smartphone without being a specialist. But is it really that simple? Actually, the daily and integrated use of different digital technologies and sharing platforms, such as social media, requires important reflections. Such reflections can lead to a rethinking of epistemologies and scientific paradigms, both in human geography and social sciences. This volume titled "Information Technologies and Social Media: New Scientific Methods for the Anthropocene" includes 10 chapters exploring some changes related to the way to do science with a multidisciplinary approach. From classroom experiences to the use of Citizen Science, from Artificial Intelligence use to how Social Media can help researchers, the book reflects on the ICT influence during the last few decades, exploring different cases, complementary perspectives and point of views.

Gaetano Sabato, PhD in Tourism Sciences, is currently Researcher of Geography at the Department of Psychological, Pedagogical, Exercise and Training Sciences of the University of Palermo (Italy), where he teaches "Geography for Primary Education" at the Sciences of Primary Education master degree. He has published several scientific articles and a monograph: "Crociere e crocieristi. Itinerari, immaginari e narrazioni", published by Giappichelli, Turin 2018. Moreover, he is guest editor, with Leonardo Mercatanti, of two Special Issues of "AIMS Geosciences". His research focuses are on cultural geography and digital representations of the space, didactics, tourism, and perception of risk.

**Joan Rosselló** is an associate lecturer at the Open University of Catalonia. He holds a Physical Geography PhD, has published more than 20 papers in national and international journals and his research focuses are natural hazards, flash floods and precipitation, studying historical and contemporary events. He sits on the editorial board of the Geographies of Anthropocene book series, Physio-Géo Journal and the Journal of Flood Risk Management.



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