There is a rich history within Classics for the use of digital humanities (DH) and computational methods. There is also a healthy amount of skepticism by some in the field who maintain that there is a fundamental division between technology and tradition. It is necessary to address the nature of this conceptual boundary and its attendant concerns. Why have some in Classics resisted digital tools and methods? Can DH adversely impact how scholars are trained in critical skills like translation? We must also ask, what is the future of the field and how do we ensure its survival in an academic environment that sees the humanities often struggling to define their purpose? As we in Classical Studies continue the common practice of drawing a number of different kinds of sources around our particular research questions, how can we usefully incorporate digital tools into our practice? What are the potential benefits of DH in Classical Studies and what can advances in technology bring to our analyses of texts, corpora, and networks?

It is also crucial for scholars working at the intersection of classics and DH to go “beyond the database”—i.e., to get past the creation (and recreation) of endless database projects and actually investigate how the application of data collection/management can be used to advance scholarship and influence pedagogy. What can database or “distant reading” approaches tell us about our materials that traditional close reading cannot? How can databases be used to better collate and disseminate scholarly knowledge, or discern large-scale patterns in the historical record?

Participants in the workshop will discuss promising results to date and plans for the immediate future, as well as discuss prospects for collaboration or integration of efforts.

Workshop Schedule (May 22nd - 24th, 2019):

May 22: Participants arrive
May 23: Text and Scholarly Databases

9:00-9:30 Opening remarks

9:30-10:00
Georgia Kolovou (University of Nanterre), Scholia Homerica project, “Translating the Homeric Scholia in the manuscript Venetus A: from the text to hypertext”

10:00-10:30
John Bodel (Brown University), “Digital epigraphy, the U.S. Epigraphy Project, and the history of American collecting”

10:30-11:00
Frauke Weierhäuser (LMU), “Open Richly Annotated Cuneiform Corpus” (confirmed)

11:00-12:00
Discussion

12:00-2:00
Lunch

2:00-2:30
Shih-Pei Chen and Calvin Yeh, “Using a Genre with a Collective Lens: the Chinese Local Gazetteers as an Example”

2:30-3:00
Shih-Pei Chen, Pascal Belouin, Sean Wang, “RISE and SHINE: A Modular and Decentralized Cyberinfrastructure for Interoperability between Textual Collections and Digital Research Tools”

3:00-3:30
M. Willis Monroe (UBC), DRH, “A Sense of Scale: The DRH as a Cross-Disciplinary Global DH Project”

3:30-4:00
Michael Muthukrishna (LSE), DRH, “Analyzing and Visualizing the Database of Religious History”

4:00-5:00
Discussion
May 24: Large-Scale Textual Analysis

9:30-10:00
Ryan Nichols, “Large-Scale Textual Analysis of an Ancient Chinese Corpus” (confirmed)

10:00-10:30
Kristoffer Neilbo, “Persistence and Change in Cultural Transmission” (confirmed)

10:30-11:00
Enrique Manjavacas and Michael Kestemonte, “Chasing the Intertext. Casting the detection of biblical allusions in Bernard of Clairvaux as an empirical problem” (confirmed)

11:00-12:00
Discussion

12:00-2:00
Lunch

2:00-2:30
Edward Slingerland, “Tipping the Hermeneutic Balance: Large-scale Textual Analysis and Scholarly Debates”

2:30-3:00

3:00-3:30
Gregory Crane (Tuft University), “Beyond the PDF: Towards a Sustainable Classical Studies”

3:30-17:00
Discussion

Dinner on your own
Paper Abstracts and Participant Bios:
John Bodel

John Bodel is W. Duncan MacMillan II Professor of Classics and Professor of History at Brown University. Educated at Princeton (B.A. 1978) and the University of Michigan (Ph.D. 1984), he taught for several years at Harvard (1984-1992) and Rutgers (1993-2002) before beginning at Brown in 2003. His research focuses on epigraphy, Roman social, economic, and cultural history, and Latin literature, especially of the Empire, and he has special interests in the comparative study of slavery, funerals and burial customs, ancient writing systems, and the application of digital technologies to the study of ancient texts. Since 1995 he has directed the U.S. Epigraphy Project, the purpose of which is to gather and share information about ancient Greek and Latin inscriptions in the USA. https://vivo.brown.edu/display/jbodel
https://brown.academia.edu/httpresearchbrowndumyresearchJohnBodel

Title: “Digital epigraphy, the U.S. Epigraphy Project, and the history of American collecting”

The U.S. Epigraphy Project (USEP) was born at Rutgers University in 1995 as a repository of information about ancient Greek and Latin inscriptions preserved in the USA. Its preliminary inventory of American museum and university collections resulted in the publication in 1997 of a printed checklist registering some 2,300 examples (ca. 720 Greek, 1,575 Latin), not counting inscribed instrumentum (J. Bodel and S. Tracy, Greek and Latin Inscriptions in the USA. A Checklist). In 1997 USEP went digital as one of two pilot projects of the nascent EpiDoc project for the semantic encoding in xml of inscribed texts according to guidelines promulgated by the international Text Encoding Initiative, with the aim of producing, at first, an on-line repository of the inscriptions registered, with key metadata categories tagged, and eventually full-scale digital editions of all the ancient Greek and Latin epigraphic material in American collections.

Twenty years later, USEP has grown modestly in scope and size, while EpiDoc has become the standard markup system for digitally publishing inscribed texts worldwide, and a consortium of EpiDoc-based European digital databases of ancient Greek and Latin inscriptions (europeana EAGLE project) has co-ordinated encoding practices to enable unified searches of nearly 240,000 Greek and (mostly) Latin texts from the territory of the Roman empire. The largest online database of Latin inscriptions (not EpiDoc-conformant) today comprises more than half a million texts (EDCS). Databases of this size encourage Big Data approaches to studying the material, but it is not yet clear that the encoded textual data is sufficiently clean and rich to enable significant advances today. That will come in the future. Instead, and predictably, the assembly and basic encoding of the data has exposed error and uncovered unexpected connections, which have themselves suggested new avenues of investigation.

My contribution will briefly survey advances in digital epigraphy over the last decade before turning to an illustration of how collation of metadata concerning the circumstances of acquisition of newly discovered Latin inscriptions emerging from a large early imperial necropolis in the northern sector of Rome (Via Salaria) during the last decades of the 19th and the first of the 20th centuries has revealed previously unrecognized connections among antiquities dealers in Rome and buyers in the USA and Europe and casts new light on the diaspora of Roman antiquities following the unification of the modern nation of Italy in 1861 and the history of American collecting at the end of the Gilded Age.
Shih-Pei Chen is an IT/DH Researcher at the Max Planck Institute for the History of Science (MPIWG). She organizes digital research projects in collaboration with scholars at MPIWG that explore ways of analyzing historical texts, including text mining, visual and geospatial analytics, for the study of History of science, technology, medicine. Her goal is to develop digital research methodologies that are useful for the broader field of historical and humanities research.

Using a Genre with a Collective Lens: the Chinese Local Gazetteers as an Example by Shih-Pei Chen, Calvin Yeh

Local gazetteers (difangzhi 地方志) are major primary sources for the study of China's local history. Written by officials and local gentry, these gazetteers documented topics far beyond geographical landscape, including flora and fauna, local products, temples and schools, officials and celebrities, local culture and customs, and much more. An estimated 8,000 titles of local gazetteers dating from the tenth to the twentieth century are still extant, covering nearly all populated regions of historical China. A significant portion of them have been digitised not only as scanned images but also as searchable full texts. Given their consistent topics and digital availability, Chinese local gazetteers as a genre are uniquely suited for research with a digital humanities approach.

In this presentation, we will introduce the Local Gazetteers Research Tools (LoGaRT), a suite of digital tools that are developed at Max Planck Institute for the History of Science to enable scholars to treat full-text digitized local gazetteers collectively as a conceptual database for research inquiries. With LoGaRT’s search function and its visual analytics, one can quickly discover and identify phenomena from all the digital gazetteers without being limited by the physical titles, regions, and time periods. With LoGaRT’s tagging function, historians can tag information from textual lists and quickly transform them into tabular datasets with much wider geographical and temporal ranges that could shape our understanding of the Chinese empire.

RISE and SHINE: A Modular and Decentralized Cyberinfrastructure for Interoperability between Textual Collections and Digital Research Tools
by Shih-Pei Chen, Pascal Belouin, Sean Wang

Digital humanities (DH) as a field has been grappling with the significant issue of interoperability as many research projects end up with creating closed digital databases with built-in analytic tools. While there have been more and more digital research tools for analyzing and visualizing texts already available, it is usually difficult for humanities scholars to download texts from various databases and to prepare them in formats that individual research tools require before analyses. By designing a set of standardized APIs to link texts to digital research tools, SHINE allows scholars to apply digital research tools on texts, regardless of their locations or formats. When it comes to licensed texts, a common situation for resources in many Asian languages, it is impossible for scholars to use digital research tools to analyze them without illegally downloading or scraping the full texts. By securely linking these licensed texts to digital research tools, RISE allows scholars to work in a legal manner and ensuring commercial publishers the safety of their collections under a secured virtual research environment. Such flexible, networked approach to cyber-infrastructure development avoids re-creating silos of resources in the digital realm and allow scholars to fully leverage the potential of material digitization and digital research tools.
In this presentation, we will introduce RISE and SHINE in detail as our solution to the rising interoperability problem in the field of DH.

Gregory Crane

Dr. Crane is the Editor-in-Chief of the Perseus Project. He has published on a wide range of ancient Greek authors (including articles on Greek drama and Hellenistic poetry and a book on the Odyssey). Much of his traditional scholarly work has been devoted to Thucydides. He has a long-standing interest in the relationship between the humanities and rapidly developing digital technology. He began this side of his work as a graduate student at Harvard when the Classics Department purchased its first TLG authors on magnetic tape in the summer of 1982. He developed a Unix-based full text retrieval system for the TLG that was widely used in North America and Europe in the middle 1980s. He also helped establish a typesetting consortium to facilitate scholarly publishing. Since 1985 he has been engaged in planning and development of the Perseus Project, which he continues to direct. Besides supervising the Perseus Project as a whole, he has been primarily responsible for the development of the morphological analysis system which provides many of the links within the Perseus database.

Title: “Beyond the PDF: Towards a Sustainable Classical Studies”

While we need to move beyond the creation of isolated databases, the real challenge might be better phrased as the need to move beyond the assumptions from print culture that still shape our model of Classical Studies. I start with the following principles. First, I follow a broad view of philology as the use of the human record to understand the past, as fully as possible and as deeply as possible, with the best methods available to us. Second, scholarship -- and especially scholarship funded by taxes -- is only sustainable in the long run insofar as it advances, directly or indirectly but tangibly in either case, the understanding of society as a whole. Third, we need to rethink what we mean when we refer to classical studies. In nations such as the United States, Classics must include Classical Chinese, Classical Arabic, Classical Persian, Classical Sanskrit and every major pre-modern literature (assuming we do not move beyond elite literatures and open ourselves to all historical languages). In Europe, a strong argument can be made for Greco-Roman studies as a unifying, transnational field of study but here the work must focus on internationalization: how can Greco-Roman studies advance European identity for an increasingly fractious European Union? What role do Greco-Roman studies play both in nations outside of Europe, with strong European cultural roots (such as the US), with very separate cultural heritages (as with most of Asia) and with complex connections (such as Iran and the much of the Islamic world)? Fourth, whether we focus on a broader Classics, or more narrowly on Greco-Roman Studies, we need to use the best methods available to us. For the first generation of digital scholarship, the question has been whether digital contributions should be valued. We now are approaching a phase shift where traditional, static publications that can be adequately represented in PDF form may cease to be accepted. Arguments must be transparently linked to the evidence upon which they are based. Traditional footnotes that point to sources that are physically and intellectually inaccessible to society as a whole are inadequate and, technologically at least, obsolete. We need to rebuild the infrastructure upon which we base our understanding of the past, both to advance specialist discourse and -- far important -- to re-establish on a sustainable basis the social contract between professional specialist researchers and the societies upon whom they depend for their pay and general support.
Jennifer Eyl

Jennifer Eyl is an Assistant Professor of Religion at Tufts University. Her work in early Christianity overlaps extensively with Classics. Her first book, Signs, Wonders, and Gifts: Divination in the Letters of Paul will be released in May 2019 with Oxford University Press. Her second book, in progress, examines Paul's uses of pistis/fidelity among gentiles. She has published in Method & Theory in the Study of Religion and Journal for the Study of the New Testament. She has a strong interest in theory of translation and Digital Humanities.

Title: “Possibilities with a Digital New Testament”

Translations of the New Testament abound on the internet. At BibleGateway, for example, the user may choose from dozens of versions in English, Chinese, Spanish, Tagalog, etc. The Perseus Project offers morphological data for the Greek, with the added function of aligning the Greek with an English translation alongside the Latin Vulgate. The TLG allows for numerous types of statistical charts as well as morphological/philological data.

This talk will introduce new ways of engaging with New Testament documents in a digital realm. Missing from the plethora of digital projects is a bringing together of philological/linguistic information with advances in New Testament scholarship. The Tufts New Testament Project (tentatively titled) will offer to users the Greek texts, morphological data, a scholarly (i.e. non-theological) translation, and hyperlinked annotation that offers commentary and historical context to the texts. Not only will the project function as a more reliable translation for users uninterested in justifying contemporary theological positions, but it will offer the student of History, Classics, or New Testament extensive relevant information about historical context for each chapter and verse.

Michael Kestemonte

Enrique Manjavacas is currently a PhD student at the University of Antwerp working on a project in Computational Linguistics. Formally, he is associated with CLIPS and the Antwerp Centre for Digital Humanities and Literary Criticism. His current research focuses on generative and sequential (mostly RNN-backed) methods to improve on stylometric tasks as well as text-reuse detection.

Mike Kestemont, PhD, is a research professor in the department of Literature at the University of Antwerp (Belgium). He specializes in computational text analysis for the Digital Humanities. Whereas his work has a strong focus on historic literature, his previous research has covered a wide range of topics in literary history, including classical, medieval, early modern and modernist texts. His research currently focuses on the application of representation learning to textual analysis.
Intertextuality is a well-known concept from literary theory, broadly refering to the (literary) phenomenon where authors include, integrate and/or allude to other texts in their own work. Various ontologies of intertexts exist but, in general, the ‘intertext’ can range from direct quotations, over paraphrased passages, to more subtle allusions. In Digital Humanities, intertextuality is typically studied under the name of "text reuse detection". So far, the majority of studies has focused on the detection of (quasi-)literal quotations and much progress has been booked in this area. Much less research, however, has tackled the more challenging area of modelling the more subtle allusions that might exist between literary works.

Adding to the considerable theoretical vagueness which surrounds the concept, intertextuality is hard to operationalize in an empirical, evaluative setting. Beyond biblical corpora, there exist terribly few open benchmark datasets that allow scholars to objectively compare methods. Moreover, no formal guidelines exist as to which sort of textual links constitute valid intertextual references. In this paper, we will report on multi-annotator experiment, involving biblical allusions in the work of Bernard of Clairvaux. We will report on the agreement between the annotators and discuss the performance of a number of straightforward baselines for text reuse detection.

Georgia Kolovou

Georgia Kolovou is a graduate of the Faculty of Letters in the University of Athens, Kapodistriakon (2005). She received her Master degree (Master I–II) in the University of Sorbonne-Paris IV (2006–08), where she also obtained her PhD degree in Greek Philology, in 2012 (2008–12). In the same year she graduated in French Literature in the University of Athens, Kapodistriakon. From 2013, she works as a postdoctoral researcher in the University of Nanterre-Paris X (Labex: Les passés dans le présent) on the topic: Les scholies à l’Iliade: du texte à l’hypertexte. She currently teaches: Greek Literature, Introduction to Ancient Greek-Roman Literature and Ancient Rhetoric Texts in the University of Nanterre, Paris X. In 2018, she has been awarded a [non-residential] postdoctoral fellowship from the CHS of the University of Harvard.

Title: Translating the Homeric Scholia in the manuscript Venetus A: from the text to hypertext.

The scholia to Homer’s Iliad – marginal and interlinear annotations that accompany the text in medieval manuscripts – form a gigantic corpus of unparalleled richness. They preserve significant information on the Homeric text and on its ancient reception and commentary, inherited from the Alexandrians (3rd-2nd cent. BC) and their successors, and they constitute an encyclopedia of ancient knowledge on this most important of texts. The manuscript Marciana 822 (= Marcianus Graecus Z. 454), known to Homeric scholars as the Venetus A, is the oldest complete text of the Iliad in existence. It was acquired by the Greek Cardinal Basileus Bessarion in the 15th century CE and donated together with his entire collection of Greek manuscripts to the Republic of Venice, thereby forming the Marciana library’s initial collection.
The Homer Multitext project offers a complete, web-based, digital scholarly edition of the contents of this deluxe manuscript, the oldest complete witness to the poem, together with its marginal comments (scholia). The text and scholia have been transcribed as a digital diplomatic edition, representing faithfully the text of the manuscript, and marked up with TEI-XML encoding for several key features.

Our goal is to present, firstly, the Homer Multitext edition of the Venetus A manuscript and, secondly, to discuss about the philological and technical questions concerning the translation of the Homeric scholia in the structural and semantic mark-up of this digital edition.

Brent Landau (missing title and abstract)

Dr. Brent Landau is a lecturer in the Department of Religious Studies. He received his Th.D and M.Div from Harvard University, and a B.A. in Religious Studies from the University of Iowa. Prior to coming to UT in 2013, he was Assistant Professor of Religious Studies at the University of Oklahoma; he has also held visiting positions at Boston University and Harvard Divinity School. Brent’s chief research is on ancient Christian apocryphal writings. Among this literature, he is particularly interested in traditions about Jesus’ birth and childhood and in fragments of Christian Apocrypha preserved on papyri. For the last several years, Dr. Landau, along with Dr. Geoffrey Smith, has led an epigraphy workshop at Oxford University which looks at various to-date untranslated papyri. Last year, his team discovered a lost translation of an apocryphal manuscript on Jesus and his brother James.

M. Willis Monroe

Willis Monroe is currently a Postdoctoral Research Fellow at the University of British Columbia where he serves as the managing editor of the Database of Religious History, and lectures in the Classical, Near Eastern, and Religious Studies department. Previously he was a Visiting Assistant Professor at Brown University in the Department of Egyptology and Assyriology where he also earned his PhD in 2016. He is particularly interested in the history of science and religion and scribal scholarship in the cuneiform world.

Title: A Sense of Scale: The DRH as a Cross-Disciplinary Global DH Project

As Digital Humanities projects expand beyond merely innovating methods and results within their own disciplines a new model for collaborative and globally engaged DH scholarship is needed. The field of DH has done an important service by augmenting models of inquiry and method within disciplines through developments leveraging digital tools and computational methods of analysis. It is clear that the ability to produce larger text corpora, and enable more intensive systems for searching are all useful and necessary endeavors. However, as the field of DH expands beyond merely extending knowledge within existing disciplines, new models are needed to match the wider remit of future projects. Building on the monumental work of early and current DH pioneers, newer projects are able to rapidly expand and reach new academic constituencies beyond their disciplinary boundaries.
The DRH in its effort to capture data about religious history, practice, and beliefs on a global scale necessarily must provide a platform and academic community for scholars from around the globe and enable wider participation towards the project's aims and goals. This requires a careful balance of the project's internal research interests with a flexible platform that enables academics to join the project from outside of its core disciplines or historical backgrounds. This takes the form of not only extensive documentation and academic communication but also technical configuration to enable a cooperative academic research environment centered on a global study of religion.

Michael Muthukrishna (missing bio, title, and abstract)

Bio: Michael Muthukrishna is Technical Director of the Database of Religious History, Assistant Professor of Economic Psychology and Affiliate of the STICERD Developmental Economics Group at the London School of Economics (LSE), and Research Associate in the Department of Human Evolutionary Biology at Harvard University.
Web: michael.muthukrishna.com; Twitter: @mmuthukrishna

Title: Analyzing and Visualizing the Database of Religious History

Ryan Nichols

Ryan Nichols is a professor of philosophy at Cal State Fullerton and affiliated researcher at University of British Columbia's Centre for Human Evolution, Cognition & Culture. Ryan's interdisciplinary research is now focused on questions about the origins and maintenance of Chinese culture. In this area he writes about interactions between the physical ecology, culture, social psychology, emotion and cognition. He's held research fellowships at UBC's Centre for Human Evolution, Cognition & Culture; University of Notre Dame's Center for Philosophy of Religion; and the National Endowment for the Humanities. From August 2017 to July 2020, he’s a John Templeton Foundation “Academic Cross-Training” fellow, which allows him to go back to school for retraining in stats, archaeology, and ecology. As of 2019, he serves as PI of an interdisciplinary project focused on understanding China's changing moral psychology.

Title: Supernatural agents and prosociality in historical China: Micro-modeling hypotheses from cognitive science of religion about the cultural evolution of morality

Moralizing High Gods Theory argues beliefs in supernatural agents with certain traits increases prosociality in concert with cultural transmission of those beliefs. The three main traits are: attending to human morality, monitoring human behavior, and punishing wrongdoers.

Moralizing High Gods Theory predicts that terms for high gods will bear stronger semantic relationships to terms representing these three traits than will terms for lower supernatural beings. Broad Supernatural Punishment Theory appears to predict that strong semantic relationships with these traits are more widely dispersed across sundry categories of
supernatural agents. We contribute to this discussion using association mining on a historical corpus of 5.7m characters of classical Chinese. This corpus includes the most influential texts in Chinese history. Associations between sets of coded content terms in aforementioned content categories (punishment, reward, and morality, as well as cognition and religion) and agents (high gods, deities or low gods, sage kings, ancestors, and, representing state influence, emperors) are computed. Accompanying test statistics are calculated. Findings indicate historical China dispersed roles of punishment, reward, morality, monitoring and religion across a wide range of supernatural agents. Due to the unconventionality of our methods, we are heedful of the utility of further testing.

Kristoffer L. Nielbo

Center for Humanities Computing Aarhus & Interacting Minds Centre, Aarhus University, Denmark

KLN is a humanities researcher that has specialized in applications of quantitative methods and computational tools in analysis, interpretation and storage of cultural data. He has participated in a range of collaborative and interdisciplinary research projects involving researchers from the humanities, social sciences, health science, and natural sciences. KLN’s research covers two areas of interest of which one is more recent (automated text analysis) and the other (modeling of cultural behavior) has followed him during his entire academic career. Both interests explore the cultural information space in new and innovative ways by combining cultural data and humanities theories with statistics, computer algorithms, and visualization.

Title: Disruptions and Persistent Dynamics in Systems of Symbolic Production

Humans exhibit a species-unique capacity for long-term planning and future-oriented cognition. This ‘deep temporality’ is so fundamental to human behavior, that is can be considered the hallmark of our symbolically mediated environmental interactions. Cultural systems of symbolic production show non-linear dynamics and long-range temporal dependencies that can present a challenge to existing methods in culture research. A valid understanding of culture therefore depends critically on selection of adequate methods and access to sufficient data. In this paper, we present a novel approach that combines latent lexical models and fractal analysis with information theoretical concepts in order to model disruptive dynamics in cultural systems. To illustrate the approach’s application, we use two very different data sets: 1) the collected writings of single authors; and 2) sampled text from the ctext corpus. Results show that with enough data, our approach can identify disruptive dynamics and transitions in cultural systems. We argue that when combined with domain knowledge in language and culture, the approach can be used to validate a set of generic theoretical claims about cultural stability and change.

Keywords:
Culture Dynamics, Culture Analytics, Adaptive Fractal Analysis, Information Theory, Biography
Frauke Weiershäuser

Frauke Weiershäuser studied History, Russian Literature and Assyriology in Hamburg and Assyriology in Leiden (NL) and Göttingen: Magister 1998; PhD 2004.
Academic positions: Georg-August-University of Göttingen (2004–2007), Ruprecht-Karls-University of Heidelberg (2007–2013), since 2013 Ludwig-Maximilians-University of Munich, since December 2016 part of the research staff of Prof. Dr. Karen Radner at the Department of History at the LMU.

Title: Working with Mesopotamian royal inscriptions of the first millennium BC in the online corpus “Oracc”

The Mesopotamian royal inscriptions of the first millennium form part of the large corpus of cuneiform documents assembled in the Open richly annotated cuneiform corpus (Oracc). Oracc consists of a number of subprojects assembling different corpora of cuneiform texts and aims to develop a complete corpus of annotated cuneiform documents from all possible genres.

Beyond corpus building and lemmatizing the texts, the Munich team, working on the royal inscriptions, has created the map-interface ARMEP (Ancient Records of Middle Eastern Polities) that offers a new approach to these texts, including several search functions. Furthermore, a new project is in the planning stage that will develop methods of cross-corpus-analysis to answer different research questions.

This talk gives a short outline of Oracc with a special focus on the royal inscriptions of the first millennium, presents the map-interface ARMEP, and discusses further possibilities to use the collected data.