

# But what is it good for? – Experiences in Public Outreach of the Göbekli Tepe Project (DAI)

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**Abstract** – With continuing strong popularity of archaeology in public perception, active science communication is more and more recognized as essential tool to not only inform about current research, but to also counter misinterpretation and misuse of archaeological data. Traditional outreach approaches like museums and popular books or articles have been complemented by new digital tools. In a time, in which facts seem to have become negotiable and 'alternative facts' can be proposed, pseudoscientific narratives are playing an increasing role in the public discourse on archaeological research – in particular, due to their accessibility in online media. Confronted with a growing public interest and proportionally increasing pseudoarchaeological narratives, we decided to address both in more open formats of science communication for the Göbekli Tepe Project with the creation of a project weblog whose aim it was to engage communication and provide information where the discussion actually was taking place: Online. This paper provides an insight into experiences and impact of nearly three years of science blogging.

**Key words** – archaeology; science communication; public outreach; online; blogging; media

**Titel** – Wozu soll das gut sein? – Erfahrungen aus der Öffentlichkeitsarbeit des Göbekli Tepe Projekts (DAI)

**Zusammenfassung** – Dank anhaltender öffentlicher Popularität archäologischer Forschung ist aktive Wissenschaftskommunikation als wichtiges Werkzeug zur Vermittlung aktueller Forschung und Korrektiv fehlerhafter Interpretation oder gar missbräuchlicher Instrumentalisierung archäologischer Daten heute weitgehend akzeptiert. Traditionelle Vermittlungsmethoden in Museen und durch populärwissenschaftliche Bücher oder Artikel sind in den letzten Jahren durch digitale Medien ergänzt worden. In einer Zeit, in der Fakten verhandelbar zu sein scheinen und ‚alternative Fakten‘ geschaffen werden können, spielen auch in der öffentlichen Debatte archäologischer Forschung sog. pseudowissenschaftliche Darstellungen eine immer größere Rolle – insbesondere durch ihre leichte Verfügbarkeit in Online-Medien. Im Rahmen des Göbekli Tepe Projekts haben wir, mit zunehmend größerem öffentlichen Interesse und verstärkt auch pseudoarchäologischen Narrativen konfrontiert, ein Weblog ins Leben gerufen, um dort an der Debatte teilzuhaben, wo sie tatsächlich stattfindet: online. Dieser Aufsatz fasst die Erfahrungen aus gut drei Jahren wissenschaftlichen Bloggens zusammen.

**Schlüsselwörter** – Archäologie; Wissenschaftskommunikation; öffentliche Reichweite; online; Bloggen; Medien

## Dichotomy of archaeology in public perception: 'Mainstream' and 'Alternative'

Science communication has become a matter of course in today's media-scape and an important part of universities' and institutions' public outreach services to inform about current research, scientific innovation and development. Whether or not (and how much) scientists themselves should engage in active communication of their own research, however, is still being debated. To understand the mutual benefit of first-hand science communication, we have to make clear why – and to whom – this research needs to be communicated. Archaeology is in the lucky but also challenging position to be perceived as a 'generally interesting' field, as numerous popular magazines, books and TV shows easily demonstrate. However, it has to be noted as well that the popular image of archaeology often seems distorted, following dated and romanticized tropes of adventure and treasure hunt rather than reflecting

current research trends and discussions in the field. Self-critically we have to admit that this is to a large degree directly linked to communication strategies from within the field and to the effectiveness of communication strategies from the relevant specialists: That is us. Leaving the public interest in archaeological research unaddressed and unanswered creates a gap – a gap which is subsequently filled in by other, more willing, more active communicators. Media evolution has led to a growing variety of very different communication channels (e.g. online) with low access barriers and high popularity, reaching a much larger visibility and distribution than ever before. Today anyone can become a communicator, journalists and editors losing their classical role as gatekeepers to some degree as well as the power to value news and information. In particular in online media it is now more often the receiver rather than the sender who is attaching weight to selected news and information by further distributing (and multiplying) these (cf. SCHERZLER, 2017). This

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Fig. 1 Aerial view of the archaeological site of Göbekli Tepe with excavation areas and surrounding rock plateaus (Photo: E. Küçük, DAI).



Fig. 2 View south over the so-called main excavation area with monumental early Neolithic T-pillars (Photo: N. Becker, DAI).



is not necessarily negative per se, but becomes a challenge with pseudoscientific ‘fringe’ narratives now reaching more people than ever before. Anti-scientific conspiracy theories are noticeably associated with growing anti-intellectual sentiments (‘alternative’ vs. ‘mainstream’ archaeology and history etc.). With the increasing popularity of shows like “Ancient Aliens” (and related online debate) and lacking better direct communication offers of actual archaeological research from actual excavators and professional archaeologists this information gap is growing. There is a danger of losing the public archaeological discourse to fringe narratives due to the simple fact that these are often more (or rather more easily) accessible and thus more visible in comparison to archaeological research data and interpretation models – accelerating spread and range of pseudoscientific influence in public perception. Is it in our interest as scientists (and as science communicators) to counteract such a process? It certainly should be.

Pseudoarchaeological narratives are far from harmless. The results of aDNA studies for example are used as arguments in a debate on modern migration, frontiers, and extreme nationalism (e.g. FAGAN & FEDER, 2006; HARLAND, 2017; BOND, 2018; NIKLASSON & HØLLELAND, 2018). The so-called Solutrean hypothesis, i.e. the highly problematic theory that America was first settled from Europe during the Epipalaeolithic has been heavily instrumentalized by the Alt-Right movement in the US (COLAVITO, 2014; RAFF, 2018). And many, if not all arguments involving superior aliens or ancient super races as responsible actors for the construction of monuments like the Egyptian pyramids, Stonehenge, Rapa Nui’s Moai etc. are inherently racist: They assume that ‘primitive’ (indigenous, prehistoric, historic) people (of colour or pre-urban societies) were just not capable to achieve such accomplishments.

But how do we counteract such narratives? The logical conclusion from this apparent development would be to shift public outreach beyond ‘traditional’ paths and channels (lectures, museums, journals etc.) to engaging public discourse where it actually happens, which in large part today means online.

### **The Göbekli Tepe Project: A short overview on research – and early media coverage**

Through excavations at the Pre-Pottery Neolithic site of Göbekli Tepe (Fig. 1) in southeastern Turkey (c. 9,600 – 8,000 BC), early monumental architec-

ture (Fig. 2) was uncovered in a hunter-gatherer context dated to the onset of, but still preceding food-production and complex sedentary societies (SCHMIDT, 2006; 2012; DIETRICH ET AL., 2012). This, and the far-reaching implications for the history of the Neolithization process, early on entailed a high degree of professional and later also public interest and corresponding media coverage. A rather recent discovery and excavation, the German Archaeological Institute’s Göbekli Tepe research project offers a good example to follow the growing public attention and the responses by conventional media reporting and ‘new (social) media’.

First noted as a Neolithic site in a joint survey by the Universities of Istanbul and Chicago in 1963 (BENEDICT, 1980), due to large amounts of flint tools on the surface, the monumental architecture was not recognized until its discovery by Klaus Schmidt in 1994 (SCHMIDT, 2012). Since then excavations and field research have been carried out uninterrupted annually in the frame of a long-term research project by the Orient and Istanbul Departments of the German Archaeological Institute in close cooperation with the Şanlıurfa Haleplibahçe Museum, (from 2005 onwards) funded by the German Research Foundation. From the beginning, outreach projects accompanied the archaeological work; e.g. small local exhibitions in the Römermuseum Weißenburg (with which a conservation plan was formed) and in Heidelberg (the university there being Klaus Schmidt’s alma mater). These exhibitions and projects received first regional news coverage (e.g. RITZER, 2000a; 2000b).

In addition to a growing body of scientific field reports and journal articles (and a few very early popular notes, e.g. BENZ, 1996; DITSCH, 1996; HERRMANN, 1999; DAHM, 2000), in 2006 Klaus Schmidt also published a popular science book on the excavations and results of the Göbekli Tepe Project to that date (SCHMIDT, 2006), which was well received (e.g. BAHNSEN, 2006; NESSLER, 2006), re-issued several times, and translated into six languages (Turkish, Italian, French, Polish, Russian, and English). In the same year media coverage gained momentum with a cover story in German news magazine *Der Spiegel* (SCHULZ, 2006). The article (following the ideas of an earlier article in the same magazine, cf. SCHULZ, 1998) linked the prehistoric site of Göbekli Tepe to the Biblical ‘Garden of Eden’ and was already illustrating the difficult relationship between research and public narrative, which would become one of the major challenges in the communication of archaeological work at the site in the years to follow. The story was also picked up outside Germany, but

almost exclusively in Turkish media (e.g. HÜRRIYET, 2008; SABAHA, 2011). The 'Eden narrative', however, remained and had further impact on later perception and its interpretation.

### Growing popularity, growing challenges

With a large major internationally recognized exhibition in the Badisches Landesmuseum Karlsruhe, Germany, in 2007 media coverage – and public attention – were notably increasing. The ensuing significant output of scientific, but as well popular publications about the archaeological site will be summarized as a 'first wave' in this media-historic overview of the research project. These included a cover story in the German educational magazine *GEO* (MEISTER, 2008), international versions of the same article immediately following, as well as the first larger features in popular English-language publications like *Science* (CURRY, 2008a), *Smithsonian* (CURRY, 2008b), and *Archaeology* (SCHAM, 2008). In the same period the first major pseudoarchaeological publication was noted with A. Collins' "Cygnus Mystery" in which the author revealed, "from the oldest temple in the world to the cutting edge of astrophysics", "that life did originate from the stars" (COLLINS, 2007, backcover). Many more followed in the coming years, of which G. Hancock's "Magicians of the Gods" (HANCOCK, 2015) would become the most prominent one (for a thoroughly critical review cf. e.g. COLAVITO, 2015; DEFANT, 2017). It was, after an early German documentary in 2002 ("*Jenseits von Eden*", Terra X) and a short TV feature in 2006 ("*Archäologische Sensation*", *titel thesen temperamente*) also this 'first wave' which furthermore produced the first foreign-language movies on Göbekli Tepe (e.g. "Stories from the Stone Age", BBC [2002]; "Homo Sapiens", CBC [2007]; "The Human Journey", BBC [2008]; "Göbekli Tepe – The World's First Temple", makeR arts [2009]). Noteworthy among these international productions is also an early episode ("*Unexplained Structures*", [2010]) of History Channel's "Ancient Aliens", introducing the early Neolithic monuments to the highly pseudoscientific, but highly popular field of the so-called ancient astronaut theory according to which extra-terrestrial entities visited earth in antiquity and influenced human culture (cf. MAY, 2016; FEDER, 2017). The show included the site in another episode ("*Mysterious Structures*", [2014]) and would later make a "Return to Göbekli Tepe" in 2017.

Finally, after the excavations at Göbekli Tepe were the topic of a *National Geographic* Magazine story in 2011 (MANN, 2011), prominently featured

on the cover of almost every local language edition (not the Turkish version though), international public attention regarding site and research project began to significantly gain momentum again. This 'second wave' of media coverage again included an increasing number of both, popular and educational documentaries (e.g. "Human Evolution", NHK [2012]; "Cradle of the Gods", National Geographic Channel [2012]; "The Green Planet", BBC [2012]; "Göbekli Tepe – Der älteste Tempel der Menschheit", WDR [2013]; "Story of God", National Geographic Channel [2016]), significantly fuelling the general public awareness of the site's existence and its popularity. Aside from further interview, filming, and picture requests, this became particularly noticeable due to an increasing number of letters and e-mails addressed to the research project from an interested lay-audience, significantly increasing the workload related to and time invested into public outreach and public relations.

It was in this 'second wave' that the public interest was extensively reflected in online media. Discussion regarding the archaeology of Göbekli Tepe and its interpretation was now happening outside special interest message boards and weblogs. Interestingly though, despite a variety of possibly available resources, this public narrative regarding the site was basically dominated by pseudoarchaeological interpretations. Actual archaeological results and data played only a marginal role in the public discourse during this period and real research output had a low public visibility and impact. This even included the history of research and discovery of the site which somehow has become the topic of a romanticised alternative narrative in which a farmer accidentally stumbles upon the monuments (e.g. CLINE, 2017, 115-116 referring to a wide-spread image within the public discourse on the site) rather than that of a trained scientist doing a systematic survey of the region specifically looking for Neolithic sites (SCHMIDT, 2012, 15-19).

### Developing communication strategies

Thus, the Göbekli Tepe project staff was confronted by an increasing media interest and growing numbers of media requests on one hand, as well as by a range of distorted, wrong, and even pseudoscientific information online on the other. Arguably, this situation was probably to some degree caused by an omission on our part as researchers. A predominance of speculative narratives (e.g. the 'Eden' scenario) was not publicly corrected

and a focus on sensationalism ('oldest temples') is to some degree owed to unclear definitions of complex terms in archaeological reporting itself.

Specific science communication or public outreach still is not a fixed part of many research projects, but more or less done 'on the go' – which means in addition to fieldwork, lab analyses, and publication. This does not necessarily mean that projects consider public communication irrelevant, but rather it reflects available resources. Of course, it is absolutely reasonable and unquestionably necessary to have communication specialists, i.e. (science) journalists, reporting on research topics and questions. Yet, these communicators depend on the willingness and preparedness of those actually producing the research to take part. With delivering and publishing data, scientists are not relieved from their obligation to contextualize findings. Offering a framework for interpretation and understanding of data to the public thus should be an equally important part of our work. This is where active science communication starts: Science communication is a social responsibility – to prevent misunderstandings, to counteract unknowing, but even more, directed misinterpretations. As mentioned above, public debate is more and more often linked to and substantiated with archaeological data – often, however, reducing complex models to mono-causal events. Thus, specialist mediation and interpretation are fundamentally important to not completely give up influence on how archaeological research is perceived and used in the creation of narratives of the past. The good news is, public interest in our work is large. This is not only positive, but essential for the legitimization of research, which – at least in the Humanities – is largely financed through public funds. Conversely this means that the public does also have the right to be informed, that science has a duty to inform. Science communication is a part of 'doing science'.

The basic challenge here (and the question the Göbekli Tepe research project had to face, and answer) can be summed up as: How to do this, practically? After a first attempt to establish a regular printed newsletter (BECKER ET AL., 2014) which was finally abandoned due to disproportionate production costs, it became clear that an effective communication strategy would need to address public interest where pseudoscientific narratives usually intercept it: Online. The most suitable solution, in terms of outreach range and publication effort was found with the set-up of a research project weblog, "*The Tepe Telegrams*" (<https://www.dainst.blog/the-tepe-telegrams> [27.5.2019]). The first topics to be addressed on

the blog were already at hand due to earlier mail correspondence directed at the research staff, which included repeated requests for specific information regarding iconography, architecture, archaeoastronomy etc. As a result, the weblog's earliest version could already provide elementary information actively requested by the public, a general overview about the site and the research project, current state of excavations and research. With a short FAQ (<https://www.dainst.blog/the-tepe-telegrams/faq> [27.5.2019]) and instructions on how to find and visit the actual site (<https://www.dainst.blog/the-tepe-telegrams/visiting-gobekli-tepe> [27.5.2019]), resources were provided to answer questions we were receiving on a daily basis via e-mail. More content was then created by providing shorter, edited articles paraphrasing the quintessence of earlier scientific papers. Since many of the messages we were receiving repeated the same basic questions in variations, answering these once – in a publicly accessible space – also contributed to reducing the daily workload of project members since requests for information now could be directed easily to the corresponding article on the blog.

In the course of more than three years, a rather broad collection of articles deriving from such conversations and public requests could be collected, which also addressed the dominating narratives regarding the site (e.g. the 'Garden Eden'; NOTROFF, 2017a) and challenging terminology (NOTROFF, 2016) as well as picking up topical internet debate (e.g. the idea that a bone plaque from the site could have been considered the 'first pictorial depiction' of Göbekli Tepe; DIETRICH, 2017a) and prevailing discussions and headlines (e.g. DIETRICH, 2017b; NOTROFF, 2019). As a result, and originally unintended, the project weblog has grown into an encyclopedia of research history and ongoing research regarding the early Neolithic site – reaching a high impact with a comparably low and manageable effort (i.e. re-using already existing material and publications).

### **Audience and impact**

With the weblog, a 'third wave' of media coverage about the archaeological research at Göbekli Tepe was started, which had significant impact on public perception and discussion of the site. Increasing visibility of actual scientific research did indeed help to publicize archaeological interpretation models regarding the site beyond 'alternative' theories. Meanwhile blog content circulates

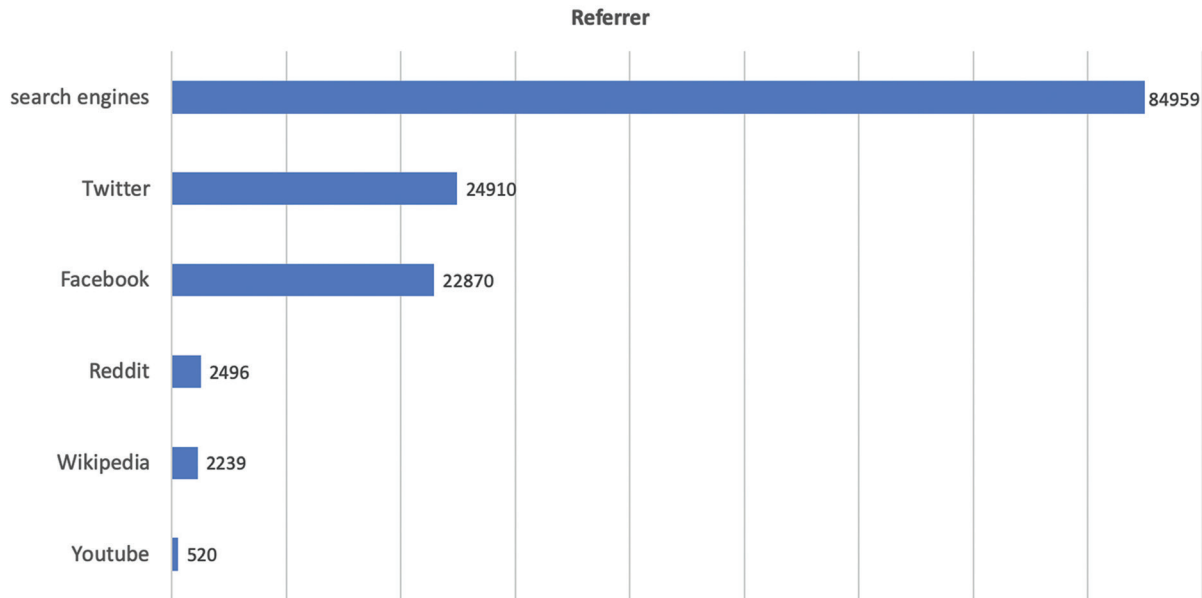


Fig. 3 HTTP referrers forwarding traffic towards 'The Tepe Telegrams' (March 2016-April 2019) (Graphic: J. Notroff, DAI).

in social media (following search engines, Twitter and Facebook are number 2 respectively 3 among HTTP referrers; cf. Fig. 3), is regularly referenced in online message board discussions, quoted, re-blogged, and even picked up and re-printed by international popular science magazines (e.g. NOTROFF & DIETRICH, 2017; DIETRICH & NOTROFF, 2017; DIETRICH ET AL., 2018; PÖLLATH ET AL., 2018).

This highlights the benefits and insights gained

through science-blogging and public interaction: Next to a noteworthy decrease of additional daily public relations work (public comments, media requests, picture requests etc.), which now could be much more efficiently handled due to an already existing pool of related material, information, and photos, it also helped reconsidering and adapting outreach strategies. Thanks to website statistics, the reached audience is becoming better

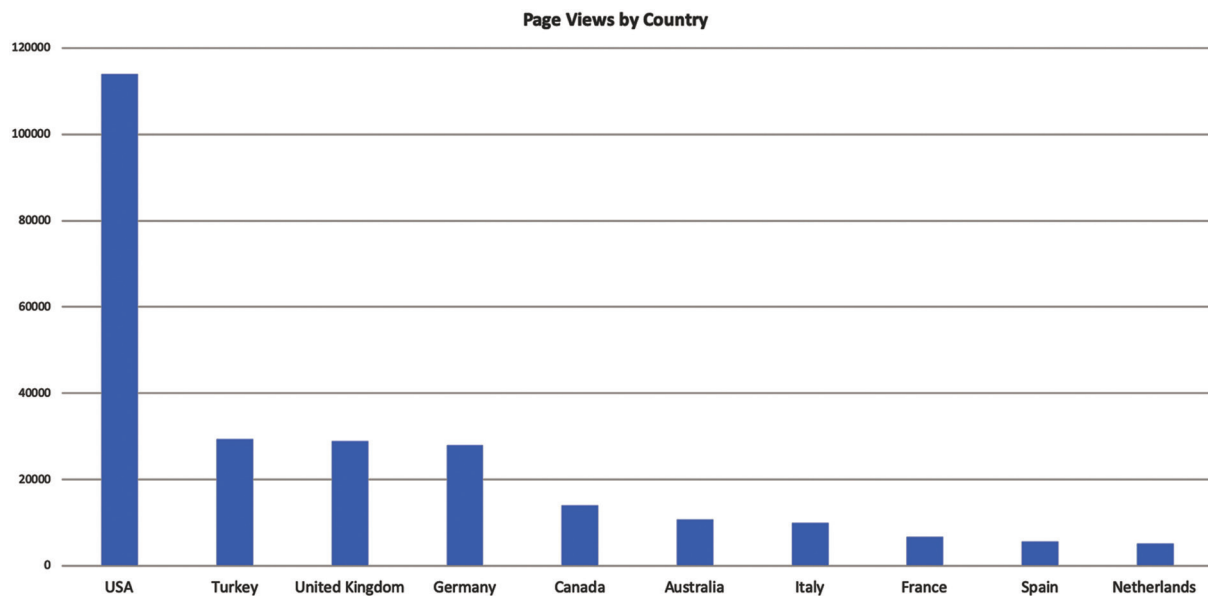


Fig. 4 'The Tepe Telegrams', page views by countries in total (March 2016-April 2019) (Graphic: J. Notroff, DAI).



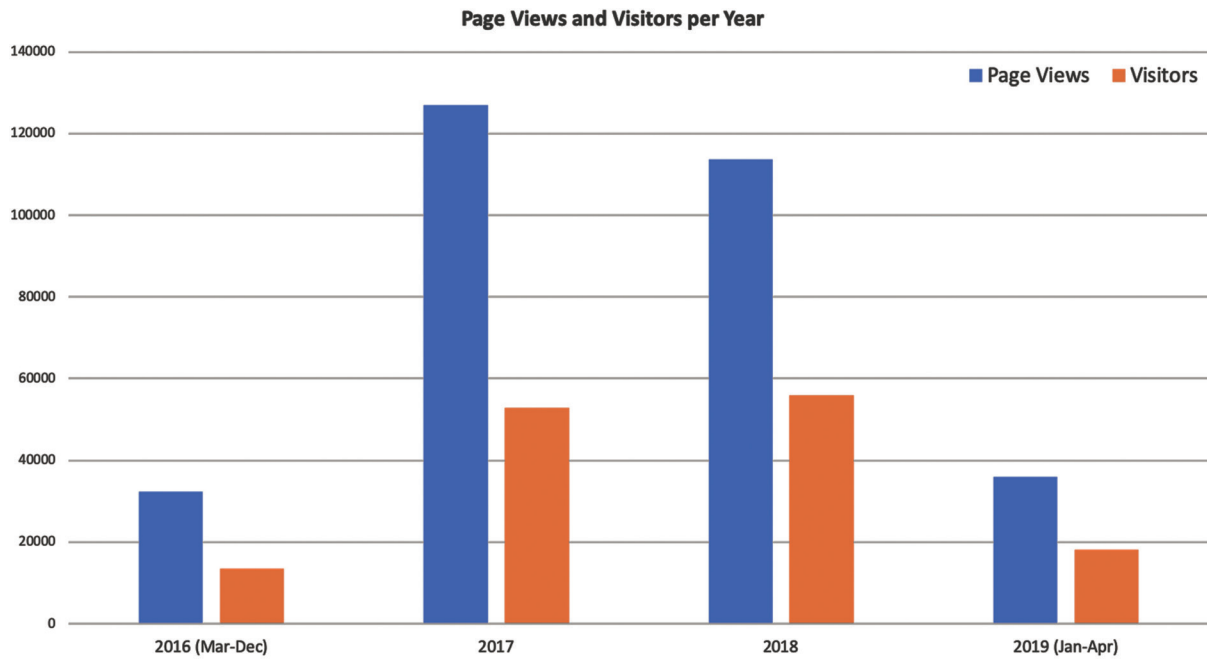


Fig. 5 'The Tepe Telegrams', page views and visitors per year (March 2016-April 2019) (Graphic: J. Notroff, DAI).

traceable, multipliers, again social media and message boards, become visible (and thus could be directly addressed and included), and topics can be assessed according to interest caused and impact left. Not much of a surprise, the audience (Fig. 4; Table 1) is mostly coming from English-speaking countries (the language of the blog and a large amount of media coverage), Turkey (where the archaeological site is situated and public relations by the Ministry of Tourism and Culture have significantly increased awareness too) (e.g. HÜRRİYET DAILY NEWS, [2018]) and Germany

Country	Page Views
USA	113,873
Turkey	29,350
United Kingdom	28,878
Germany	27,938
Canada	13,949
Australia	10,733
Italy	9,945
France	6,607
Spain	5,661
Netherlands	5,075

Table 1 'The Tepe Telegrams', page views by country (updated: 08 May 2019).

(where the research project is affiliated with the German Archaeological Institute, and thus earliest media coverage appeared). Other, particularly western European countries are following in the list, likely reflecting a focus of international media coverage (the particularly high number of page views from the United States may also be rooted in the internet's infrastructure with a lot of major routing and service tiers situated in the US or associated with US companies).

Apart from direct access to content via URL and search engines, most visitors coming from third party websites were redirected to the weblog from social media, discussion boards, Wikipedia, YouTube videos, and other online media content (news reports, magazines) linking to the blog or specific articles. Among these sources discussion forums should be mentioned here in particular, a noteworthy number of examples could be asso-

Year	Page Views	Visitors
2016 (March – December)	32,244	13,421
2017	126,977	52,760
2018	113,686	55,924
2019 (January – April)	35,960	17,989

Table 2 'The Tepe Telegrams', page views and visitors per year (updated: 08 May 2019).

ciated with a pseudoarchaeological background (cf. ROMÉY, 2003), and thus one of the intended outreach goals (increasing visibility and access of actual research data to counter pseudoscientific narratives by offering context and interpretation) could be considered accomplished. Of course, visibility and access do not mean acceptance, but reference and discussion of these data certainly led to awareness, perception, and knowledge of archaeological interpretation and models which formerly would have mostly been absent (or communicated through several filters). This may be one of the biggest advantages of online publications in contrast to traditional publication models to be emphasized here, in particular regarding science blogging: The chance to react to emerging discussions in real-time, providing data and context to questions in the moment they are coming up.

Visitor numbers and individual article-views now by far outnumber the public audience which could have been reached (if any) with scientific publications (Fig. 5; Table 2).

Again, this is a situation beneficial for both sides: While essential up-to-date research data become largely accessible to everybody without limitations (as long as they are already published, scientifically, elsewhere) in the form of blog articles, at the same time these are also introducing current archaeological interpretations regarding the site into the public discourse. Either passive-

ly with existing content referenced as resource in discussions, or actively by selectively picking up currently discussed questions in new articles.

An exemplary view into 'The Tepe Telegrams' readership statistics illustrates the actual benefit of a repository of curated content (general information and basic research data). On one hand, there are clear peaks in click numbers in the wake of TV shows and documentaries (e.g. 'Ancient Aliens' etc.) or discussions on online platforms attracting a large followership (like e.g. REDDIT). On the other hand, our data also demonstrate the impact of contributions specifically targeted at particular questions or news regarding Göbekli Tepe. Conspicuously, the ten most read articles on the weblog (Fig. 6) are almost all rather basic contributions containing general descriptions, information, and data on the site, its finds, chronology, and interpretation. The blog apparently is answering a demand for information (and is accepted as a resource for these), but furthermore has become a powerful tool in presenting and spreading the excavation staffs' perspective and scientific interpretation as well as contrasting (and countering) pseudoscientific narratives regarding the site of Göbekli Tepe.

Specific examples of such impact can be visualised by linking visitor numbers to dates and events. There are a couple of noteworthy peaks among site visits over the last years – and they

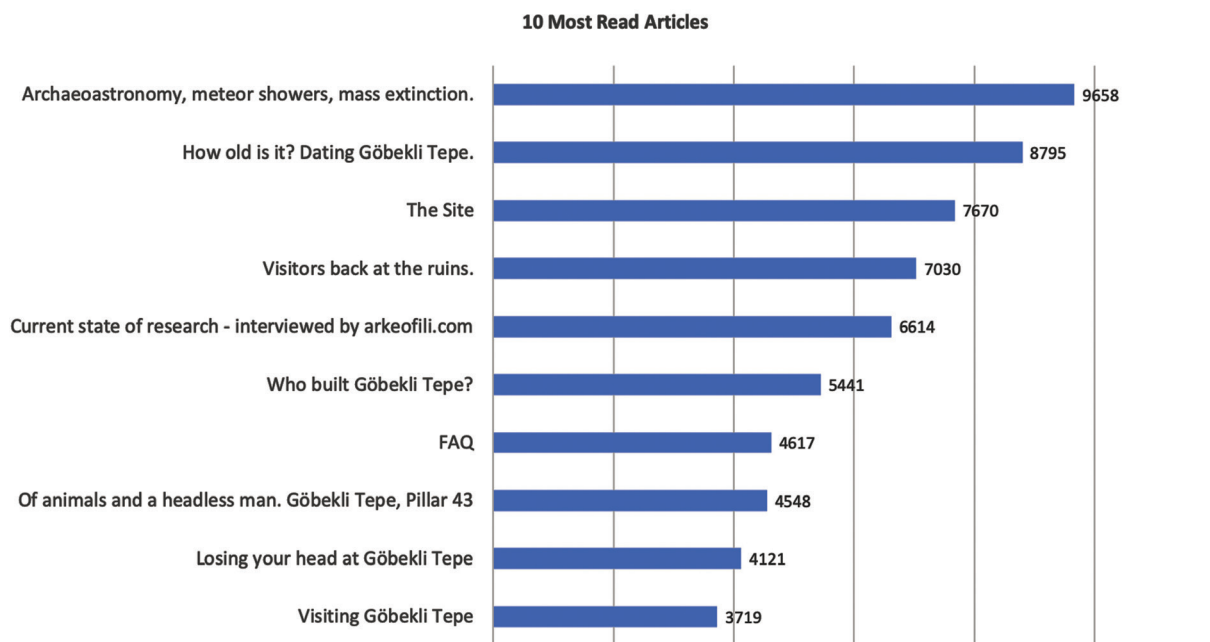
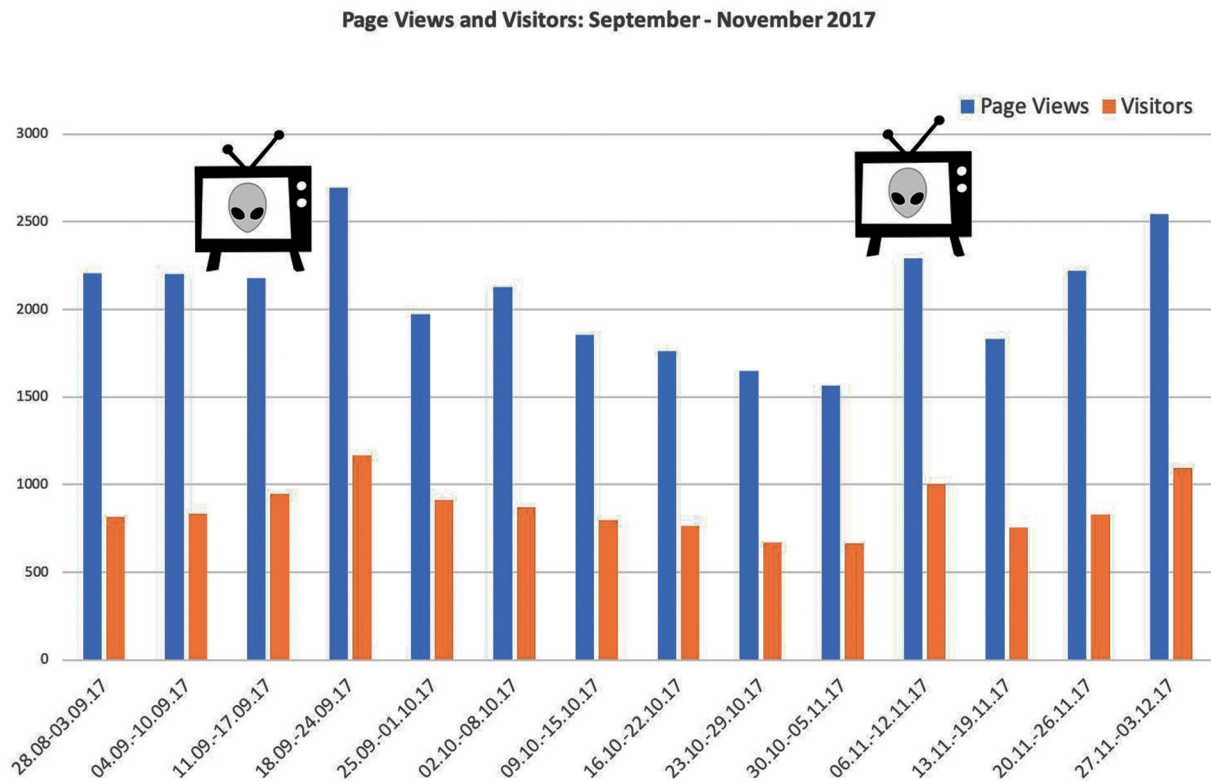


Fig. 6 Top 10 most read articles on 'The Tepe Telegrams' in total (March 2016-April 2019) (Graphic: J. Notroff, DAI).





**Fig. 7** ‘The Tepe Telegrams’, page views and visitors between September and November 2017 with noticeable peaks following broadcasted ‘Ancient Aliens’ episodes about Göbekli Tepe (Graphic: J. Notroff, DAI).

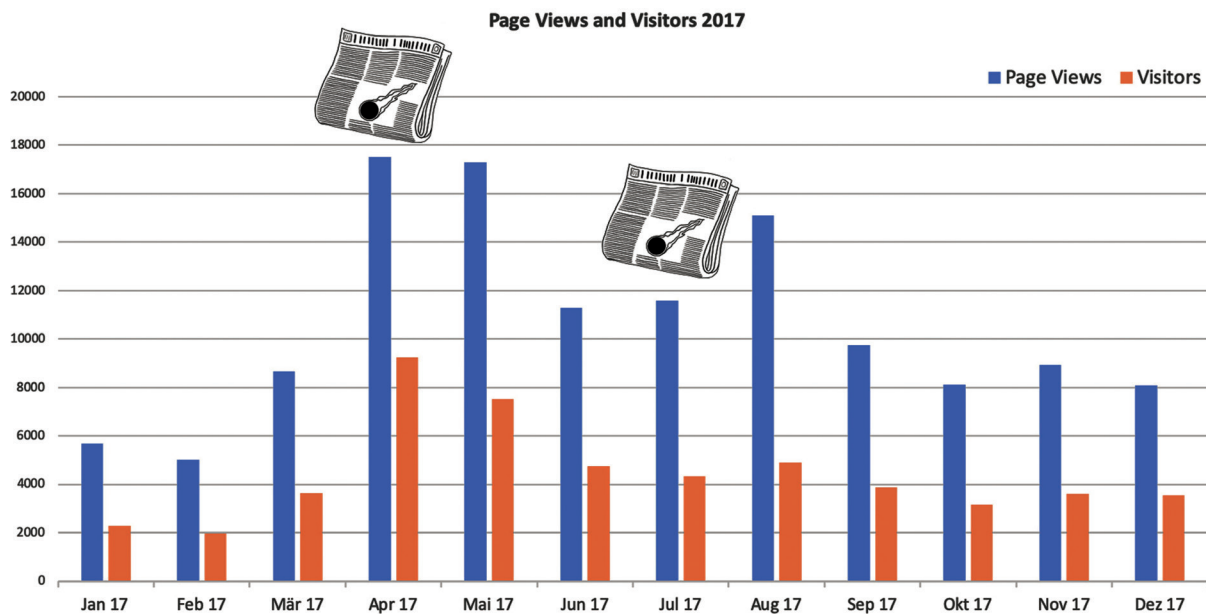
seem to correlate with topics and debates raising public interest about and perception of the archaeological site in particular. One for instance would be the airdates of TV shows focussing on ‘archaeological mysteries’. The “Ancient Aliens” episodes spending a significant part on Göbekli Tepe for example seem to have encouraged people doing own internet-based research on the excavations, the site, and possible results, leading more visitors to the blog in the immediate wake of these programmes (Fig. 7; Table 3), e.g. episode 16 of season 12 (“Return to Göbekli Tepe”) which aired September 15<sup>th</sup> 2017 in the US and November 11<sup>th</sup> 2017 in Germany. Probably not by chance, there are increasing visitor numbers in the weeks of and following broadcasts.

A similar outcome can be noted with reference to print and online media coverage. In April 2017 two engineers from the University of Edinburgh published a study claiming to have ‘decoded’ Göbekli Tepe with a statistical-archaeoastronomical approach (SWEATMAN & TSIKRITSIS, 2017) based on a ‘catastrophism’ scenario which also is a particular popular element of pseudoarchaeological narratives (cf. e.g. COLLINS, 2014; HANCOCK, 2015). With a rather arbitrary data base and lacking any

consideration of the state of research in Pre-Pottery Neolithic iconography but equipped with an apparently well-organised PR department, the study was widely picked up by news outlets,

Week	Page Views	Visitors
28.08. – 03.09.2017	2,204	813
04.09. – 10.09.2017	2,201	831
11.09. – 17.09.2017	2,180	946
18.09. – 24.09.2017	2,693	1,165
25.09. – 01.10.2017	1,972	910
02.10. – 08.10.2017	2,125	868
09.10. – 15.10.2017	1,855	797
16.10. – 22.10.2017	1,761	762
23.10. – 29.10.2017	1,649	670
30.10. – 05.11.2017	1,562	665
06.11. – 12.11.2017	2,292	1,002
13.11. – 19.11.2017	1,832	755
20.11. – 26.11.2017	2,219	829
27.11. – 03.12.2017	2,542	1,096

**Table 3** ‘The Tepe Telegrams’, page views and visitors: September – November 2017.



**Fig. 8** 'The Tepe Telegrams', page views and visitors Januar-December 2017 with noticeable peaks related to the publication of Sweatman's and Tsikritsis' 2017 study, media coverage, and the Göbekli Tepe project's rebuttal (Graphic: J. Notroff).

creating an abundance of rather sensational headlines ("Ancient stone carvings confirm how comet struck Earth in 10,950BC, sparking the rise of civilisations", The Telegraph 21 April 2017; "Ancient carvings show comet hit Earth and triggered mini ice age", New Scientist 21 April 2017; "Ancient stone pillars offer clues of comet strike that changed human history", phys.org 24 April 2017 etc. pp.). Interestingly, none of these reports included reference to, or mention of, the actual archaeological research project and its published results. The "Tepe Telegrams" weblog, however, offered a quick and easy medium to reply and clarify the, from an archae-

ological point of view problematic, fallacies of the study. Although this rebuttal-in-real-time naturally did not cause a similar amplitude of headlines, blog visitor numbers do emphasize that it was indeed recognized and distributed further (Fig. 8; Table 4).

A more detailed rebuttal was published in the same journal the original study appeared in a couple of months later (NOTROFF ET AL., 2017), but the advantage of short publication and thus quick reaction time, barrier-free access, and prompt circulation of the blog article as direct reaction certainly helped increasing visibility of the actual research on the site and raising concerns with this problematic interpretation. In fact, to this date the original reply (NOTROFF, 2017b) remains the most often read article on the blog (Fig. 6).

These few examples already illustrate impact and benefit of a science communication strategy including online and social media. They are further complemented by message board discussions referencing blog content as well as pointing out the project weblog as actual resource in the course of public debate entailing media reporting – thus likely directing a far more diverse audience to the weblog than is actually becoming actively visible through the 'comments' section.

Without having undertaken a detailed survey and analysis of actual readership, the comments are the best direct information available regarding the blog's audience. This has to be taken into account

Month	Page Views	Visitors
January 2017	5,662	2,285
February 2017	5,000	1,991
March 2017	8,657	3,637
April 2017	17,512	9,213
May 2017	17,304	7,525
June 2017	11,262	4,745
July 2017	11,569	4,326
August 2017	15,105	4,902
September 2017	9,752	3,867
October 2017	8,122	3,156
November 2017	8,936	3,586
December 2017	8,096	3,527

**Table 4** 'The Tepe Telegrams', page views and visitors 2017.

when considering who is consuming these articles and media – and when planning further outreach strategies. Starting or joining a public discussion means to actively overcome inhibitions (technical and personal) and speaks in favour of increased interest in a topic and (in most cases) the conviction to have something valuable to add. Commentators thus already form a very specific, rather dedicated group among the audience. So far (May 2019) 1,158 comments face 101 blog articles, also including replies by the research staff addressing questions raised in the course of discussion. Comments and general blog activity allow – with due reservation – to identify four groups characterized by differing levels of interest and motivation among our readers:

1. *Consuming*: Those who read and move on without further interaction. Likely the majority.
2. *Interested*: People with an apparent interest and background education in (popular) scientific content. Sometimes providing direct feedback, asking specific questions.
3. *Broadly interested*: Readers widely interested in archaeological and (popular) scientific content, (critically) including pseudoscience. Engaging in discussion, looking for actual input in opinion-forming process.
4. *Pseudoscience*: Basically collecting data and material to be incorporated in discussions. Often engaging debate, but mostly to present their own models and interpretations.

Of these four groups, probably the second and third are the audience mostly benefitting from outreach efforts. Arguably group one could be included here as well, but actual impact is hard to measure due to a lack of interaction (it would be interesting to follow up on this question with a more detailed survey differentiating interaction activities like commenting, sharing links etc.). This also shows, however, that framing communication strategies as part of science and research ideally needs open channels, i.e. offering a chance of mutual exchange and feedback, to be successful and with measurable impact.

However, with a view to the basically US and European background of the majority of blog visitors (**Fig. 4; Table 1**) and the distinctive audience groups, we also have to admit that these outreach strategies have their limits and take place in a confined echo chamber of a particular Western or Western socialised and educated group of people. While these admittedly so far are the borders of the sphere of our communication efforts, they arguably also describe the main target audience of pseudoarchaeological narratives. In this respect, so-called new media, i.e. online science communication can

reach an audience usually not or not extensively participating in more traditional outreach activities. The earlier discussed Karlsruhe exhibition in 2007 also produced a detailed visitor-analysis (KLEIN & ANTONATOU, 2007). Generally, it could be argued, museum visitors very much resemble the blog readership: A largely western, educated audience with a specific interest in archaeology. With a significant difference though, it seems: Age. With 106,000 visitors over a running time of 21 weeks (KLEIN & ANTONATOU, 2007, 7-8), the exhibition “12,000 Years ago in Anatolia” certainly can be considered successful, in particular reaching and having an impact among an older audience (age groups: 51-60 and 61-70 years old) with a largely academic background (KLEIN & ANTONATOU, 2007, 16-17). In comparison, the audience usually addressed and reached by pseudoscientific publications and in particular shows like “Ancient Aliens” is a significantly younger one. Viewing figures for the “Return to Göbekli Tepe” episode in the US (aired September 15, 2017) show a total of 1.246 million viewers with a market share of 0.3% in the 18-49 years old age group (WELCH, 2017). Yet these figures do not depict the actual and final scope and reach of this format. This younger viewership also is one with a significantly higher online-affinity (for Germany cf. e.g. STATISTISCHES BUNDESAMT, 2018a; 2018b; for the US e.g. PEW RESEARCH CENTER, 2017) and much of the actual discourse is taken to the internet, where the shows are also accessible via streaming services and video-sharing websites, widely perpetuated and discussed. Thus, the main advantages of online engagement remain range, persistence and aggregation of information. With open, low-threshold digital media, science communication has got a powerful tool at hand. With easily understood and accessible online content, scientists have a voice in an often noisy debate. We should use it.

## Conclusion

This rather short introduction into the development and impact of public outreach strategies at Göbekli Tepe, answering a growing demand and thus workload in the course of a still actively running archaeological excavation and research project may first and of all serve as an example of science communication as opportunity rather than a burden. So is the apparently and obviously existing and still growing public interest in research and science in general, in our case in archaeology in particular. Largely funded from public bodies, we do not only have the task, but the obligation to



answer this interest. This also means to openly engage in public discourse – and to consider the different affordances of a multi-layered audience to create science communication strategies as inclusive as possible (cf. e.g. RICHARDSON, 2014). Otherwise parts of the audience are lost (to pseudoscientific content and sources). Even if we as scientists do not look for public discourse, the public is looking for us. Accepting science communication as genuine part of science and research is long overdue. This means including communication strategies and staff into the development of research plans and projects from their very beginning. Science communication is not a chore, it is a chance. The chance to actively shape the public perception of research projects, scientific fields, and science. Proper communication strategies help to focus public outreach and impact, reducing individual workload and produce reciprocal benefit for both sides: Researchers and the public.

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