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### Staff

<table>
<thead>
<tr>
<th>Director</th>
<th>Advisory Board</th>
<th>Management Team</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. dr. P.A.J. Attema</td>
<td>F.B.J. Heinrich, M.A., MSc</td>
<td>Prof. dr. R.T.J. Cappers</td>
</tr>
<tr>
<td>Dr. L. de Jong</td>
<td></td>
<td>Prof. dr. P. D. Jordan</td>
</tr>
<tr>
<td>Prof. dr. P. D. Jordan (chair)</td>
<td></td>
<td>Dr. J.H.M. Peeters</td>
</tr>
<tr>
<td>Dr. P.M. van Leusen</td>
<td></td>
<td>Prof. dr. S. Voutsaki</td>
</tr>
<tr>
<td>Dr. M.J.J.E. Loonen</td>
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<td>M.A. Los-Weijns</td>
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<th>Members</th>
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<th>Support Staff</th>
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<tr>
<td>Prof. dr. R.T.J. Cappers*</td>
<td>Ö. Demirci, M.A.</td>
<td>E. Bolhuis</td>
</tr>
<tr>
<td>Prof. dr. H.A. Groenendijk*</td>
<td>T.M. Dijkstra, M.A.</td>
<td>A.R. Hofman</td>
</tr>
<tr>
<td>Prof. dr. A.F.L. van Holk*</td>
<td>S.J. Dresscher, M.A.</td>
<td>H.C. Küchelmann</td>
</tr>
<tr>
<td>Prof. dr. M.L.P. Hoogland*</td>
<td>A.M. Hansen, MSc</td>
<td>F. Geubel</td>
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<td>Dr. L. de Jong</td>
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<td>M.A. Los-Weijns</td>
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<tr>
<td>Prof. dr. P.D. Jordan</td>
<td>M.M.A. Hondelink, M.A.</td>
<td>Drs. G.J.M. van Oortmerssen</td>
</tr>
<tr>
<td>Prof. dr. G.J. de Langen*</td>
<td>O. Jones, M.A.</td>
<td>R.M. Palfenier-Vegter</td>
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<td>Dr. P.M. van Leusen</td>
<td>M.E. de Jong, MSc</td>
<td>Drs. M.G. Peters</td>
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<td>A.O. Junno, M.A.</td>
<td>K. van der Ploeg</td>
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<td>Dr. E. van ‘t Lindenhout</td>
<td>V. Kalenderian, MSc</td>
<td>F. Possel</td>
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<td>Dr. M.J.J.E. Loonen</td>
<td>E. Lawton-Matthews, M.A.</td>
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<td>M.H. Llewellyn, M.A.</td>
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<td>Y.T. van Popta, M.A.</td>
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<td>Prof. dr. S. Voutsaki</td>
<td>D. Postma, M.A.</td>
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<td>K.M. de Vries, M.A.</td>
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<td><strong>Associate members</strong></td>
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<td>Dr. R.M. Bekker</td>
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<td>Aspasiapremie L. de Jong</td>
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<td>A taste of historic cookery</td>
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<td>A look from pingo scars in the province of Fryslan</td>
<td>Provincie Friesland</td>
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<td>INTERACT Arctic Station</td>
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<td>Contribution salary PhD Student</td>
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<td>Standardisierung in der Archeobotanik</td>
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<td>Cultural History of Death (Fac. Theology, Fac. of Arts)</td>
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**Total funding 2016** €1,129,497
### PhD Projects

#### PhD Enrolment

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#### PhD Success rates

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<th>Starting year</th>
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<td>D ≤ 4 (≤ 48 months)</td>
<td>4 &lt; D ≤ 5 (49-60 months)</td>
<td>5 &lt; D ≤ 6 (61-72 months)</td>
<td>6 &lt; D ≤ 7 (73-84 months)</td>
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<td>0 (0%)</td>
<td>1 (50%)</td>
<td>1 (50%)</td>
<td>0 (0%)</td>
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<tr>
<td>2009</td>
<td>1 (16,7%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>3 (50%)</td>
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<tr>
<td>2010</td>
<td>1 (33,3%)</td>
<td>0 (0%)</td>
<td>1 (33,3%)</td>
<td>1 (33,3%)</td>
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<tr>
<td>2011</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>1 (25%)</td>
<td>0 (0%)</td>
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<td>2012</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
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#### not yet finished | discontinued

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PhD Defences in 2016

20 October, **Marianna Fasanella Masci**
Promotor: Prof. Dr. P.A.J. Attema, Co-promotor: A.J. Nijboer
La produzione della ceramica geometrica enotria nella Sibaritide durante l’età del Ferro.
Studio comparativo sulle tecnologie di foggatura

20 October, **Francesca Ippolito**
Promotor: Prof. Dr. P.A.J. Attema, Co-promotor: Prof. Dr. M. Pacciarelli
Before the Iron Age. The oldest settlements in the hinterland of the Sibaritide (Calabria, Italy)

20 October, **Wieke de Neef**
Promotor: Prof. Dr. P.A.J. Attema, Co-promotor: Dr. P.M. van Leusen
Surface <> Subsurface. A methodological study of protohistoric settlement and land use in Calabria (Italy)

3 November, **Gary Nobles**
Promotor: Prof. Dr. D.C.M. Raemaekers, Co-promotor: Dr. J.H.M. Peeters
Dwelling on the edge of the Neolithic. Investigating human behaviour through the spatial analysis of Corded Ware settlement material in the Dutch coastal wetlands (2900-2300 calBc)
Current PhD Projects

Prehistory and Protohistory of Northwest Europe

**Bakker, M. (Wadden Academy; University Campus Fryslân, University of Groningen/Groningen Institute of Archaeology, 2013-2017)**
The Frisian peat reclamations of the Late Iron Age and Roman Iron Age
Promotores: Prof. Dr. G.J. de Langen. Prof. Dr. D.C.M. Raemaekers, and Prof. Dr. ir. M. Spek. Co-promotor: Dr. J.A.W. Nicolay.

**Demirci, Ö. (ArchSci2020, 2016-2019)**
Regional variation in the use of the earliest pottery in Northwestern Europe
Promotor: Prof. Dr. D.C.M. Raemaekers. Co-promotores: Prof. Dr. P.D. Jordan, Dr. S. Arnoldussen, Prof. Dr. O. Craig (University of York).

**Drenth, E.**
The Beaker Cultures in Northwest Europe
Promotor: Prof. Dr. D.C.M. Raemaekers.

**Hondelink, M.M.A. (NWO, 2016-2021)**
A taste of historic cookery - a reconstruction of the daily meal as prepared by common burghers of Early Modern Dutch cities, AD 1500-1850
Promotor: Prof. Dr. R.T.J. Cappers. Co-promotor: Prof. Dr. B. Blondé (Universiteit Antwerpen).

**Krol, T.N.**
Anglo-Saxon pottery of the Northern Netherlands in a regional and cultural context
Promotor: Prof. Dr. G.J. de Langen. Co-promotores: Prof. Dr. D.C.M. Raemaekers, Drs. A. Nieuwhof.

**Matthews, S.G.**
Techniques and Society: A use-wear analysis of the metalwork from the Middle Bronze Age of Northwestern Europe
Promotor: Prof. Dr. D.C.M. Raemaekers. Co-promotores: Prof. Dr. S. Hamilton, Dr. S. Arnoldussen.

**Niekus, M.J.L.Th.**
Stone Age Occupation of the northern Netherlands, Time, Space, Location and Subsistence
Promotor: Prof. Dr. D.C.M. Raemaekers.

**Overmeer, A.B.M.**
Dutch clinker-built ships in the 15th and 16th centuries
Promotores: Prof. Dr. D.C.M. Raemaekers, Prof. Dr. H.R. Reinders, Prof. A.F.L. van Holk.

**Popta, Y.T. van (NWO, 2014-2018)**
From sweet to salt: dynamics of the maritime cultural landscape of the Northeastern Zuiderzee between 1100 and 1400 AD. An interdisciplinary and spatial approach

**Postma, D.**
Lost building traditions: turf construction and early medieval architecture in the southern North Sea area
Promotor: Prof. Dr. G.J. de Langen.

**Roest, K. de (University of Groningen/Groningen Institute of Archaeology, 2015-2019)**
Properly put to rest? A multi-angled study into individual and collective burial rites in Northwest Europe c. 1000 BC-500 AD
Promotor: Prof. Dr. D.C.M. Raemaekers. Co-promotor: Dr. S. Arnoldussen.

Settlement development of Frisian Terp sites from the Early Iron Age to the Late Middle Ages
Promotores: Prof. Dr. G.J. de Langen. Prof. Dr. D.C.M. Raemaekers. Co-promotor: Dr. J.A.W. Nicolay.

**Vries, K. de (ARCHON, 2015-2019)**
Settling with the norm? Norm and variations in social groups and their material manifestations in (Roman) Iron Age settlement sites of the northern Netherlands
Promotor: Prof. Dr. D.C.M. Raemaekers. Co-promotor: Dr. S. Arnoldussen.

**Waldus, W.B. (Erfgoedcentrum Nieuwland, 2014-2016)**
De Zuiderzee als verkeersplein, de rol van de binnenvaart bij de economische ontwikkeling van de Lage Landen (1550-1900)
Promotores: Prof. Dr. A.F.L. van Holk. Co-promotor: Prof. Dr. D.C.M. Raemaekers.

**Woltinge, I.**
What lies beneath? The value of buried Stone Age landscapes
Promotor: Prof. Dr. D.C.M. Raemaekers.
Classical and Mediterranean Archaeology

Crudo, M.
Greek and indigenous cultural encounters in 8th century BC South Italy - a pottery perspective.
Promotor: Prof. Dr. P.A.J. Attema.

Fischetti, A.L.
Ciampino: Marcareola locality and the so-called via Castrimieniense
Promotor: Prof. Dr. P.A.J. Attema.

Hansen, A.M. (NWO, 2014-2018)
The agricultural economy of Islamic Jordan, from the Arab conquest to the Ottoman period.
Promotor: Prof. Dr. R.T.J. Cappers. Co-promotores: Dr. B.J. Walker, Dr. W.M. Jongman.

Heinrich, F.B.J. (NWO, 2012-2016)
Productive Landscapes: An interdisciplinary inquiry into the productivity of crop husbandry
Promotores: Prof. Dr. R.T.J. Cappers, Prof. Dr. P.A.J. Attema. Co-promotor: Dr. W. M. Jongman.

Loon, T. van
Defining the ritual, analyzing society. The social significance of material culture in pre-Roman cult places of central Italy (ca. 900-400 BC)
Promotor: Prof. Dr. P.A.J. Attema.

Oome, N.
Hellenistisch aardewerk en Hellenitische sites in de Sibaritide
Promotor: Prof. Dr. P.A.J. Attema.

Satijn, O.
A socio-economic and political landscape archaeology of transition: southern Lazio from the Late Roman period to inceastellamento
Promotor: Prof. Dr. P.A.J. Attema.

Scubers J.F.
The Settlement of Crustumerium and its hinterland (800-450 BC)
Promotor: Prof. Dr. P.A.J. Attema.

Weistra, E.
Archaic terracotta votive offerings from the Athenaion in Francavilla Marittima (Calabria, Italy)
Promotor: Prof. Dr. P.A.J. Attema.

Greek Archaeology

Dijkstra, T. (NWO, 2012-2016)
Civic and Cultural Identities in a Changing World: Analyzing the mortuary practices of the postclassical Peloponnesse
Promotores: Prof. Dr. S. Voutsaki, Prof. Dr. O.M. van Nijf.

Jones, O. (University of Groningen/Groningen Institute of Archaeology, 2012-2016)
Mycenaean Burial Traditions of Achaea: An Anthropological and Bioarchaeological Approach
Promotor: Prof. Dr. S. Voutsaki.

Kalenderian, V. (Rosalind Franklin Fellowship, 2014-2018)
Osteological Analyses and an evaluation of mortuary Practices and cultural exchange
Promotor: Prof. Dr. S. Voutsaki.

Milka, E.
Mortuary differentiation and social structure in the Middle Helladic Argolid
Promotor: Prof. Dr. S. Voutsaki.

Panagiotopoulou, E. (University of Groningen/Groningen Institute of Archaeology, 2012-2016)
The transition from the Bronze Age to the Iron Age in Greece: isotopic analysis of skeletal remains from sites of Central Greece
Promotors: Prof. Dr. S. Voutsaki, Prof. Dr. H. van der Plicht. Supervisor: Dr. A. Papathanasiou.

Arctic and Antarctic Studies

Admiraal, M. (University of Groningen, 2015-2019)
Prehistoric food technologies, maritime adaptations and climate change in the North Pacific
Promotor: Prof. Dr. P.J. Jordan. Co-promotor: Prof. Dr. O. Craig (University of York).

The ‘Aquatic Neolithic’ of the Northern European Boreal Forest.
Promotor: Prof. Dr. P.J. Jordan. Co-promotor: Prof. Dr. O. Craig (University of York).

Comis, S.
Het textiel van Spitsbergen
Promotor: Prof. Dr. L. Hacquebord.

**Dresscher, S.J. (University of Groningen, 2014-2017)**

Surviving off the land and sea: understanding the expansion of European commercial hunting systems into the High Arctic - a case-study of Pomors on Spitsbergen (18th-first half 19th century).

Promotor: Prof. Dr. P.J. Jordan.


Dealing with radiocarbon reservoir effects in human and faunal skeletal remains

Promotor: Prof. Dr. P.J. Jordan. Co-promotor: Prof. Dr. G. Eriksson (University of Stockholm).

**Gustafsson, U.I.**

The exploitation of natural resources by the early 20th century whaling industry; its impact on the environment and the geo-political situation in the Polar Regions

Promotor: Prof. Dr. L. Hacquebord. Co-promotor: Dr. D. Avango.

**Haas, H.R. de**

The coal exploitation of the Dutch Spitsbergen Coal Company (NESPICO) Green Harbour in its national and international context

Promotor: Prof. Dr. L. Hacquebord. Co-promotor: Dr. J.W. Veluwenkamp.

**Jong, M.E. de (NWO, 2014-2018)**

From historical data to a prediction of the future for geese on Arctic tundra

Promotor: Prof. Dr. P.J. Jordan. Supervisor: Dr. M.J.J.E. Loonen.


Human-Animal Relations in the Okhotsk Culture of Northeast Asia

Promotor: Prof. Dr. P.J. Jordan. Co-promotor: Dr. Sven Isaksson (University of Stockholm).


Direct AMS dating of early pottery in Northern Eurasia

Promotor: Prof. Dr. P.J. Jordan. Co-promotor: Prof. Dr. J. van der Plicht, Dr. Sven Isaksson (University of Stockholm).

**Steenhuisen, F. (Extern, University of Groningen)**

A GIS model of Mercury emission and deposition in the World.

Promotor: Prof. Dr. L. Hacquebord.

**Cornelisse M. (Extern, School voor Toerisme Breda)**

Betreven van duurzaam en experienced-based toerisme voor Ylläs, Finland.

Promotor: Prof. Dr. L. Hacquebord.

**Roe, E.H. (University of Groningen, 2016-2020)**

Tradition and innovation among the Early Dorset of Greenland: a study of lithic technology


**Steenbeek, S.**

De Friese schippers in de Sontvaart en de Nederlandse markt voor maritime transport (1550-1800).

Promotor: Prof. Dr. L. Hacquebord. Co-promotor: Dr. J.W.Veluwenkamp.

**Sandström, C.A.M.**

Health and immunology of Arctic breeding birds

Promotor: Prof. Dr. A.G.J. Buma, Prof. Dr. L. Hacquebord. Co-promotor: Dr. M.J.J.E. Loonen.


The genomic effects of prehistoric and contemporary marine mammal exploitation

Promotor: Prof. Dr. P.J. Jordan. Co-promotor: Prof. Dr. M.T. Olsen (University of Copenhagen).
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ArchSci 2020 = ArchSci 2020 research project
ARCHON = ARCHON Scholarship
CS = Chinese Scholarship
DPB = Dutch PhD Bursary
ERC = European Research Council
NLE = Nieuw Land Erfgoed
NWO = Dutch Research Council
PFR = Provincie Friesland
RF = Rosalind Franklin PhD
RUG = Employed PhD student
UCF = University Campus Fryslân
UE = Ubbo Emmius bursary

B = Begin contract
D = Defence
E = End contract
S = Stopped
Publicity
See the University Website for all press clippings and media presentations of the staff members of the Groningen Institute of Archaeology.

Activities
See the University website for all activities performed by staff members of the Groningen Institute of Archaeology.

Research results

Arctic and Antarctic Studies

*Exploration and resource development in polar areas*

*Prehistoric food technologies, maritime adaptations and climate change in the North Pacific* (Marjolein, M.)
As part of her PhD Marjolein Admiraal spent most of 2016 at the University of York where she learned to conduct organic residue analysis on pottery. She conducted almost all the labwork herself and spent 6 weeks collecting further samples in the Northwest USA.

*Food Security in the High Arctic While Balancing the Demands of Commercial and Subsistence Hunting* (Dresscher, S.)
Russian hunters-fishermen-tradesmen went to Svalbard during the 18th and the first half of the 19th century to hunt for marine mammals and fur bearing animals and were away from home for over a year. They were under considerable stress because of the need to be economically successful and to survive in the High Arctic. What were their food security strategies? How did they balance the subsistence hunt with the commercial hunt? In this article, data from different disciplines are used to analyse the food security strategies and explicate how they managed to balance the subsistence hunt with the commercial one in the High Arctic.

Classical and Mediterranean Archaeology

*Landscape, settlement, ritual and society in protohistoric and Roman Italy*

*First excavation campaign in the La Sassa cave* (M. F. Rolfo (University of Rome Tor vergata))
The 2016 campaign brought to light a Copper Age burial place (three individuals) in a small lateral branch and some possibly later cultic activities dated to the Middle Bronze Age. Some analysis are planned on the bones: strontium isotopes, for ascertain the provenience; carbon and nitrogen isotope ratios for the diet reconstruction; DNA analysis in collaboration with Oxford Department of Zoology. In the Copper Age and Roman/Medieva soils different vulcanic minerals have been found which will be analysed to detect from which eruption they came from. Some other human bones have been found under a Middle Bronze Age layer, some of them are partially burned.
At the bottom of the stratigraphical sequence, pleistocenic fauna have been found (bears, hyena, panther).
Special activity sites along the Etruscan coast between the Late Bronze and Early Iron Age.  
Puntone Fieldwork 2016. (Cinquegrana, M. R.)

Within the framework of my PhD project a test excavation was conducted with the purpose to reconstruct the human activities that took place along the northern Etruria coast during the Late Bronze and Early Iron age in a study area located between Colline Metallifere and the former lake of Scarlino.

The 2016 fieldwork resulted in four research areas named A-D. The excavation units’ selection criteria were based on the 2015 geophysical survey results and the Archaeological excavations carried out in 1996 and 2002 by the Superintendency, at the time interpreted as archaeological remains of salt production.

The archaeological evidence found in the test excavation has confirmed the presence of a production site where activities occurred that were linked with the exploitation of marine sources. A sand deposit has been identified along the slope edge related with the ancient work surface (area A); this evidence together with a stratification of debris that was detected (area C) contribute to better understand the site formation processes. With regard to the manufacturing process the following features could be investigated: a U-shape pit, most likely having to do with evaporation of seawater (area B) and a dumping place related to an activity that entailed a combustion process and which resulted in a huge accumulation of pottery sherds of the 'reddish impasto' type (area D). Based on the typology of sherd the dumps can be dated around the 8th century BCE but further study of the pottery should give us a more precise knowledge of the chronotypology of the materials (area D). Further excavation in combination with a coring survey could clarify the chaîne opératoire of the manufacturing activities and give the opportunity to understand how salt production and huge needs of fuel affected the environment.

Ciampino: Marcandreola locality and the so-called via Castrimieniense (Fischetti, A. L.)

The 2016 study focused on the redrawing of the ancient landscape of the Suburbium of Rome; specifically close to the slopes of the Alban Hills. Concentrating on the area along the Castrimieniense road and how this road influenced the development of the sites close to it. I have identified 15 sites within the boundaries of Ciampino municipality, and this has prompted me to extend the time frame of the use of the Castrimieniense road from the Eneolitic Age to late Imperial Age. Up to this point in time, I have focused on the Bronze age and the Archaic period. I have excavated an Archaic site close to the road and I have found some tombs, one with grave goods from VI-V century B.C., a wall and a stretch of the road. I have linked all the archaic evidence along the road and I have started to identify the typology of the settlements as rural sites and that this stretch of “Campagna Romana” was under the political influence of Rome, since late archaic period. I conducted a survey in a part of the area within the boundaries of Ciampino municipality and I found a funerary building that I have cleaned and now I am able to study it. I started to clean and label fragments of pottery from the Marcandreola site (site 1) and from Romana Vecchia site (site 2). I made the typology of the ceramic class of the "olle" from site 2 and, at the moment, the results indicate that the ceramic deposit is dated back to the third century B.C.

The Avellino Event (Attema, P.A.J., Leusen, P.M. van, Gorp, W. van, Alessandri, L., Sevink, J. (Universiteit van Amsterdam), Doorenbosch, M. (Universiteit van Leiden), Field, M.F. (Universiteit van Leiden))

In the course of 2016 the Avellino Event project completed its first phase of fieldwork, involving coring in the Pontine plain and Fondi basin for paleogeographical and paleo-ecological analysis, and
an assessment of the La Sassa cave stratigraphy in relation to the AV ash. Work on the pollen and macroremains plus related dating continued at the University of Leiden, and the project was presented at the LAC and EAA conferences to make it more generally known within the discipline. A well-attended international specialist meeting on the distal impacts of volcanic eruptions on pre-industrial societies was held at the old Royal Observatory on the Vesuvius in June, the proceedings of which will be edited as a special issue of Quaternary International during 2017. At the start of the year, students of the Hanze Hogeschool Mediastiek presented a short documentary based on their video work for the project.

Methods and approaches of archaeological detection in mediterranean landscapes

CIDOC-CRM compatibel deponeren van Archeologische Veldverkenningen: een verkenning aan de hand van drie testdatabases (De Haas, T.C.A., Van Leusen, P.M.)

In this pilot, funded by KNAW-DANS, we developed an extension to the CIDOC-CRM ontology in order to map archaeological field survey datasets. We used this extension to map several field survey datasets gathered within the Pontine Region Project. We also discussed the need and potential of such an approach to describing field survey data with colleagues from Amsterdam and during a meeting of the International Mediterranean Survey Workshop in Ghent. The pilot resulted in a report and in the deposition of the digital data of the Minor Centres Project and the Hidden Landscapes Project with DANS.

The Rural Life in Protohistoric Italy Project (Leusen, P.M. van, Armstrong, K.L. (TigerGeo Ltd, University of Durham), Neef, W. de, Sevink, J. (University of Amsterdam))

In 2016 the RL research programme was wound up, with De Neef working on her PhD thesis until August, and Van Leusen supervising. Preparations were made with Sevink for the first volume of the new series Raganello Basin Studies (on the geoarchaeological work of the project), including revision of the coring data and work on the figures. In the latter part of the year research data from the project were prepared by De Neef for deposition with DANS. In December, Van Leusen met the director of the Sibari museum to arrange for a final material campaign to take place in spring 2017.

Pilot study ‘CRM-mapping of GIA field survey projects’ (Leusen, P.M. van, Haas, T.C.M. de)

From February to November 2016, a KNAW/DANS Small Data Project pilot study (subsidized with 8500 euros by KNAW) was carried out in order to develop a CRM extension covering actors, activities and documentation of modern field walking surveys and to map the Pontine Region Project database, the Monti Lepini (Hidden Landscapes Project) database and the Minor Centers Project database to this CRM. CRM specialists were consulted for guidance in the CRM construction and mapping process, and informal agreements were made with other national and international survey teams to extend the work in the near future. The MCP database was deposited with DANS in November, the Lepini database is to follow before 1 March 2017. Documents describing the CRM extension and two of the mappings were submitted to KNAW on 1 December.

Contexts in caves - caves in context (Neef, W. de)

This pilot project focuses on the non-invasive detection of prehistoric remains in limestone caves. The investigation of such traces is logistically and financially challenging, and usually involves long-term excavations. This project aimed at testing and evaluating two non-invasive geophysical methods, electrical resistivity tomography (ERT) and ground penetrating radar (GPR) for the detection of prehistoric remains. While these methods are commonly used in archaeological
prospection, there have so far not been systematic studies of their application on prehistoric cave contexts. Five caves in Lazio (Central Italy) were selected for easy access, available data from partial excavations, and presence of typical cave situations including fine cave sediments, roof collapses in large and small blocks, and lime sintering. Four of the selected caves could be investigated, the fifth had been subject to a dangerous roof collapse just before the fieldwork, and access was denied by the heritage authorities. The results from the four remaining caves are encouraging: at La Sassa, we may have located a hidden entrance; at Regina Margherita, we probably detected a burial, at Pistocchino we likely detected a buried wall, and in Mora Cavorso we detected prehistoric hearths underneath a layer of lime concretions. The data are currently being processed, modelled and interpreted.

**Economy and living standards in the Roman World**

*The Minor Centres Project (De Haas, T.C.A., Tol, G.W., Borgers, B., Anastasia, C. (Local Liaison))*

2016 was the final year of the Minor Centres Project and we therefore worked on the final reporting on the fieldwork, to be submitted to the archaeological superintendency and on the final report for NWO. Also, the four investigators worked on their respective deliverables and De Haas and Tol finalised the manuscript of an edited volume to appear with BRILL in 2017. The results were also presented in a session organised by Tol and de Haas at the Conference for Italian Archaeology in Galway. In March, a temporary exhibition prepared by Tol and De Haas opened in the Museo Agro Pontino (Pontina). This exhibition and an accompanying catalogue present the outcomes of the project to the local public. The exhibition has been extended several times, attracting more than 2000 visitors so far. Alongside the exhibition a laboratory was organized, which was attended by c. 1000 school children. Finally, the digital data generated by the project were archived with DANS.

*The agricultural economy of Islamic Jordan, from the Arab conquest to the Ottoman period (Hansen, A.M.)*

A.M. Hansen conducted fieldwork and continued the analysis of macrobotanical materials from each case study site treated in her project. The major economic crop taxa, arable weed taxa, and other weed taxa have been identified and quantified. A new technique for the analysis of carbonised dung in macrobotanical samples was explored. In the course of the Tall Hisban Excavations field season, a side project was developed to explore the management of cereal crop processing waste for the formation of tabun ovens and dung cakes. This case study has further illuminated the economic use of crops and other plants in early to late medieval rural Jordanian sites as well as the management of crop processing wastes/by-products for other industries. Furthermore, the importance of barley at rural Jordanian sites has been investigated.

*Productive Landscapes NWO PhD (Heinrich, F.B.J.)*

Focus this year was on finishing up my PhD project and most time was devoted to writing. In addition, coursework, research and other activities related to my Adam Smith Fellowship in Political Economy were performed.
Greek Archaeology

Social change and cultural interaction in the prehistoric and protohistoric Aegean

Research on social change in prehistoric Aegean (Voutsaki, S., Wiersma, C.W., Milka, E.)
Research activities on the topic of social change in the prehistoric Aegean, a central theme for the Greek Archaeology research group, continued and resulted to many talks and lectures by Sofia Voutsaki (e.g. in the TMA Conference on Connectivity, an OIKOS meeting in Anchring Innovation, two talks in the Early Mycenaean Conference, and a lecture in Aegeus Society for research on the Prehistoric Aegean).

Ayios Vasilios Survey Project (Wiersma, C.W.)
Evidence of the 2015 pilot survey, but especially of earlier surveys, locates an EH (II) settlement near the Chapel. Evidence of the MH and early LH period is meager in the survey, although the Northern Cemetery was in use during this period. Perhaps this settlement is located beneath the current excavation areas, as suggested by the recovery of such material in deep trenches. LH II and LH IIIA material is found in an increasingly expanding area. The existence of some dispersed buildings should be considered a possibility. LH IIIA(-B) material is found spread over the top of the hill, but is significantly dropping in numbers in the south, where the geophysical results also indicate ceasing of built structures. Very little LH IIIB material has been found, which is also in accordance with the excavation results so far, which indicates some dispersed LH IIIB habitation. No evidence has been found of Proto-Geometric or Geometric material. However, significant amounts of painted tiles have been found during the survey, as well as some Classical-Hellenistic sherd material and a Tanagra-type figurine. Considering the survey findings, it seems very possible that a Classical-Hellenistic structure is located on the hill. The Byzantine period is also well represented and widespread at the hill.

During the 2016 fieldwork, and during the subsequent processing and analyses of the finds, various modifications have been made to the database and the fieldwork forms. The spatial coverage method tested, was largely retaining during the 2016 survey. However, smaller total collections were made. A preliminary overview of the 2016 findings shows that find densities were much lower on the northeastern side of the hill range. Recovered finds dated especially to more recent periods, while relatively little Mycenaean material was collected.

Diet, mobility and society in the prehistoric and protohistoric Aegean

Diet, health and mobility in Ayios Vasilios (Voutsaki, S., Dee, M. (Centre of Isotope Research, ESRIG, RuG), Moutafi, I. (Wiener Laboratory, ASCS), Vika, E. (free-lance isotope specialist))
In 2016 the Ayios Vasilios North Cemetery Project established a collaboration with the Centre for Geogenetics, a leading laboratory in ancient DNA and isotopic analyses. The Copenhagen Laboratory will carry out some of the analyses (ancient DNA, C14, strontium analysis) on the osteological material from the North Cemetery. This will allow us to carry out a more extensive programme of analyses, and provide a control mechanism for the results.

Social change and cultural interaction in the Hellenistic and Roman eastern Mediterranean

Excavation at Halos (T.M. Dijkstra)
In 2016 seven test trenches were excavated at Magoûla Plataniótiki, the probable site of pre-Hellenistic Halos in Thessaly, Greece. Two trenches had already been opened in 2014 and were
extended, the other five were placed at strategic locations in order to answer various questions regarding the spatial and temporal dimensions of the site. Preliminary analysis of the finds suggest that the test trenches yielded remains dating from Archaic to Hellenistic times, including Cl.-Hel. domestic architecture, Hel. monumental public architecture, and infrastructure: a part of a road was found, and there is evidence for terracing of the site. In addition to the excavation a detailed plan of the surface remains was prepared. The fieldwork is an ongoing cooperative project of the University of Groningen, the University of Amsterdam, and the Ephorate of Magnesia. In 2016 a team from the University of Alberta, Canada joined the project.

**Erbil Plain Archaeological Survey (EPAS)** (de Jong, Lidewijde, Ur, Jason (Harvard University))
This project investigates the long-term impact of ancient empires on the rural landscape of North Iraq (Kurdistan) by combining a study of historical satellite and aerial photographs with on the ground survey. The projects hosts various international scholars specialized in the prehistoric, Bronze Age, Iron Age, Sassanian, and Early Islamic periods. The GIA involvement concentrates on the Hellenistic though Roman-Parthian centuries. This year a Veni post-doctoral scholarship was awarded to R. Palermo in order to study the Hellenistic settlement patterns and ceramic assemblages from the EPAS project.

**North Mesopotamia between Alexander and Djenghis Khan** (de Jong, Lidewijde, Palermo, Rocco (Università degli Studi di Napoli Federico II))
This research project concentrates on the archaeology, history, and environment of North Mesopotamia in the Classical, Byzantine, and Early Islamic era. This year a full-day workshop dedicated to Mesopotamia in this period was organized at the International Congress on the Archaeology of the Ancient Near East (ICAANE) in Vienna ('After Mesopotamia: the land between the two Rivers after the Assyrians and before Islam. New Perspectives, Trajectories of Research and Modern Approaches'). A research article was accepted for publication in The Archaeology of Empires – Investigating the Transformation of Rural and Peripheral Landscapes and Societies in Old World Empires, B.S. Düring & T. Stek (eds.), Cambridge University Press, Cambridge.

**Aspasia Grant (NWO)** (de Jong, Lidewijde)
This project investigates the flourishing of local diversity in the context of intensified connectivity of the Roman world, by focusing on mortuary practices in the eastern provinces of the Empire. The Aspasia grant awarded by the Netherlands Organization for Scientific Research (NWO) will fund in the next five years: the creation of a database for the digital recording of funerary materials, fieldwork on necropoleis in Roman Pisidia (Turkey), and a research position.

**Digital Humanities Exploratory Project Grant** (de Jong, Lidewijde)
This grant was awarded by the Centre for Digital Humanities (University of Groningen) for the project 'Digital Tombs: Towards an integrated study of funerary practices'. The project will build an integrated database of funerary materials that facilitates the analysis of large and disparate bodies of data. The database serves as a prototype for future studies of mortuary customs, as well as a digital repository of the severely threatened archaeological heritage of Syria. Work will commence in 2017.

**Necropoleis Research Network** (Ersoy, Yaşar (HITEŞI), Hürmüzlü, Bilge (Isparta University), de Jong, Lidewijde, Voutsaki, Sofia)
The Necropoleis Research Network aims to bring together people working on any aspect of mortuary archaeology in the Eastern Mediterranean and the Near East between the Dark Ages and the Late
Roman periods (all loosely defined). Although mortuary remains –arguably - represent one of the most dominant categories of evidence for this period/region, we feel that its scholars are widely scattered, not only geographically, but also in terms of methodological and theoretical approach. We believe that we can benefit greatly from closer collaboration. Furthermore, advances in study of human remains are opening the field to new questions of relevance to all mortuary archaeologists. This network is primarily intended to facilitate an exchange of ideas and methodological best practices. The first meeting was held in January in Groningen.

**Attitudes to the past in the present**

*The past in the future: archaeology, history and ethnography in Ayios Vasilios (Voutsaki, S., Bampilis, T. (Netherlands Institute at Athens))*

Preparations have started for a new project, an ethnographic survey in the area surrounding the Ayios Vasilios site. This project is a component of the Ayios Vasilios Survey Project (alongside the field-walking and geophysical surveys), but aspires to develop into a self-standing research project on uses of the past in modern Laconia, southern Greece. A public lecture on attitudes to the past in modern Greece was given to the Philosophy Students Association of the University of Nijmegen, and a talk on Archaeology and Sustainable Development was given at the European Association of Archaeologists 2016 Meeting in Vilnius, both by Sofia Voutsaki.

*Ancient Monuments and Modern Identities (Voutsaki, S., Cartledge, P. (Prof. Emeritus, University of Cambridge))*

The final editing of the volume "Ancient Monuments and Modern Identities: a critical history of Archaeology in 19th and 20th century Greece", edited by Sofia Voutsaki and Paul Cartledge, has been completed. The volume will appear in 2017 by Routledge.

*Prehistoric and Protohistoric Archaeology of North-west Europe*

*The development of cultural landscapes*

*Celtic field project (S. Arnoldussen)*

This year, a peer-reviewed publication on the processes underlying Celtic field bank formation (with M. van der Linden (BIAX) was submitted. Moreover, OSL and AMS samples to establish the age and developmental pace of the banks at Someren - De Hoenderdoom were processed. In terms of fieldwork, this year's excavation at Westeinde - Noormansveld used test-trenches to study the interrelations of habitation and agriculture in part of the Westeinde Celtic field complex. A house-site with outbuildings (granaries), pits and wells were uncovered. The archaeobotanical samples from two Celtic fields were studied: the palynological data for Someren - De Hoenderboom and the macro-botanical remains for Westeinde (the 2014 campaign).

*HERA proposal (S. Arnoldussen)*

Considerable time was spent on submitting a HERA - Uses of the past proposal, that unfortunately, did not receive funding in the final round.

*Publishing results of excavations in the Onlanden area (Nicolay, J.A.W. (ed.))*

Throughout 2016, a group of researchers, headed by J.A.W. Nicolay, has been working on the publication of large scale excavations in the Onlanden area (Drenthe, the Netherlands). A total of over 60 sites have been excavated by small and some larger test pits, resulting in new ideas about
the dating and development of this peatland area. The results will be published in a monography in 2017.

*The excavations in Ezinge, 1923-1934 - analysis of the results (Nieuwhof, A., van der Laan, J.)*

The analysis of the excavation results of the excavations in Ezinge (1923-1934) was continued this year. The finds material was already published in 2014, except for the wooden objects. These were analysed and published this year by Jelte van der Laan. The focus is now on the layout and history of the settlement and on its relationship with the salt marsh landscape that surrounded it, prior to medieval embankment. Because of the complexity of the documentation set, the project is no longer aiming at the separate publication of the first 500 years, as was originally planned, but now aspires to publish the entire habitation history, from 500 BC to the Middle Ages.

*Stone Age society: pattern and process*

*Archaeological computational modelling (M.E. Brouwer Burg, J.H.M. Peeters, W.A. Lovis)*

Since the availability of powerful computers and software, computational modelling has become popular in archaeology. Computer models provide powerful tools to develop further understanding of socio-cultural processes in the past and patterns in the archaeological record. However, little attention has been paid to aspects of model uncertainty, as yet. A discussion forum organised (M.E. Brouwer Burg, New Brunswick; W.A. Lovis, MSU; J.H.M. Peeters, GIA) at the 2014 meeting of the Society for American Archaeology, dealt with the pressing issue of uncertainty in archaeological modelling. Detecting where and when uncertainty is introduced to the modelling process is critical, as are strategies for minimizing, reconciling, or accommodating such uncertainty. The meeting has resulted in an edited volume, which has been published this year by Springer. The included chapters provide various perspectives on uncertainty in archaeological modelling, ranging in both theoretical and methodological orientation. The strengths and weaknesses of various identification and mitigation techniques are discussed, in particular sensitivity analysis. Nine chapters written by American and Dutch scholars demonstrate that for archaeological modelling purposes, there is no quick fix for uncertainty; indeed, each archaeological model requires intensive consideration of uncertainty and specific applications for calibration and validation. As very few such techniques have been problematized in a systematic manner or published in the archaeological literature, the volume aims to provide guidance and direction to other modellers in the field by distilling some basic principles for model testing derived from insight gathered in the case studies presented. Additionally, model applications and their attendant uncertainties are presented from distinct spatio-temporal contexts.

*Mesolithic human remains from the North Sea (J. van der Plicht, L. Amkreutz, M. Niekus, J.H.M. Peeters, B. Smit)*

The North Sea bed hosts remains of Pleistocene and Early Holocene landscapes that were, mostly gradually, inundated following the last deglaciation. Archaeological remains from the seabed obtained by fishing, dredging, and sand suppletion include human skeletal remains. Radiocarbon dating (conducted at the CIO, RuG) reveals that most of these are Mesolithic although a few Late Palaeolithic and historic remains are represented. Samples with known stable isotope ratios $\delta^{13}C$ and $\delta^{15}N$ show that Mesolithic inhabitants of ‘Doggerland’ had a significant component of freshwater fish in their diet. This means the $^{14}C$ dates are subject to a reservoir effect mainly determined by the freshwater bodies at the time. Because of the
lack of context, the magnitude of the reservoir effect cannot be derived, so that the $^{14}$C dates cannot be calibrated to absolute ages. A correlation is observed between the $\delta^{15}$N values and the (uncalibrated) $^{14}$C dates.

**Material Culture Studies**

*Bronze Age sickles (S. Arnoldussen, H. Steegstra)*
A full inventory and analysis of all known Dutch Bronze Age sickles was undertaken, based on the J.J. Butler archives but supplemented with new metallurgical analyses and interpretation.

*The Scandinavian North Sea (Nicolay, J.A.W.)*
In 2016 a silver square-headed brooch, found with a metal detector near Holwerd (Friesland, the Netherlands) was studied and interpreted as part of a larger group of Scandinavian-type gold and silver ornaments from the 5th- to 7th-century North Sea area. The main conclusion is that this area in between the Roman period and the Carolingian period should be seen as the periphery of an extensive 'Scandinavian cultural zone'.

*Late Palaeolithic and Mesolithic flint technology (P.W. Hoebe, Y. Csonka, J.H.M. Peeters)*
An ongoing project concerns the study of flint tool production technologies in Late Palaeolithic and Mesolithic traditions. One study (P.W. Hoebe) focusses on blade technologies of the Late Palaeolithic Magdalenian-Hamburgian-Creswellian traditions. It investigates to what extent it is possible to differentiate between these traditions (largely defined on the basis of projectile point typology) on the basis of the specific way blades have been produced. Initial results indicate rather wide variability. A second study (Y. Csonka) is concerned with the identification of pressure flaking for the production of microblades in the Dutch Mesolithic. The research is in its initial stage, but the presence of small ‘bullet cores’ showing negatives of narrow, regular microblades seem to support the possibility of pressure flaking, which involves specialised technical control and socio-cultural transmission of knowledge and skill.

*Early Neolithic cremated bone (R. Breider, C. Çakırlar, J.H.M. Peeters)*
In 2001 the results of the large-scale excavations of the Mesolithic and Early Neolithic site of Hoge Vaart-A27 (Flevoland) were published in an extensive report. Among the large quantity of finds, the large amount of heavily burnt (calcined) bone remains stood out. Based on the particular composition of the assemblage (consisting of remains of mammals, birds and fish) in terms of the degree burning, it was suggested that the pattern results from deliberate actions and not from differential preservation. This, however, was not further studied in detail. In the present project, the initial interpretation is being tested by means of an in-depth analysis of a representative sample of the assemblage. The first results indicate that there is considerable variability in the degree of burning (ranging from slightly burnt to calcined), which supports the idea that the pattern does not result from differential preservation. Further work will continue to underpin this further and develop additional arguments for a behavioural background and interpretation of this phenomenon.
TRB stone cist of Heveskesklooster (H.K. Kamstra, J.H.M. Peeters & D.C.M. Raemaekers)
The stone cist was a chance find resulting from the excavation of a dwelling mound (wierde) at Heveskesklooster in the 1980s. Owing to its location beneath this younger dwelling mound and a layer of natural sediment, also the Neolithic surface surrounding the stone cist was excavated. This provided a rare opportunity to study the use of space surrounding the monument. The stone cist was probably built between 3200 and 2950 cal. BC. The flint assemblage testifies to the activities that took place in the area surrounding the stone cist. Although the particular date of these activities is difficult to correlate to the stone cist, it seems that these took place during both TRB and later Neolithic periods. The flint assemblage cannot easily be fit into a bipartite division between ritual and everyday activities. Compared to other TRB stone cists, the Heveskesklooster stone cist yielded few chamber finds. This is the first indication that later inhabitants of the site may have disturbed the content of the burial. Another can be found in the absence of some of the orthostats. Both arguments suggest that in their behaviour the Late Neolithic habitants at Heveskesklooster did not revere the stone cist burial as an ancestral place, but instead seem to have desecrated it. It is concluded that local Corded Ware communities may have had widely differing notions about the relevance of TRB monuments to their sense of ancestry and identity.

Archaeological heritage management

In 2015 the National Heritage Agency of the Netherlands commissioned a research project to conduct a synthetic analysis of research results of 10 years of development-driven archaeology concerning the early prehistory (Palaeolithic through Middle Neolithic). The analysis connects to the research questions and themes as outlined in the National Archaeological Research Agenda 1.0 (NOaA), and is intended to evaluate knowledge gain as a baseline for the development of a new research agenda. Under the umbrella of three broad themes (people and material; people and space; people and environment) and from multiple spatio-temporal perspectives, the research team has analysed the results of development-led work, published in 139 reports. At this stage, the overall conclusion is that knowledge gain is limited (or even zero) for the majority of NOaA 1.0 research questions. Much information from the reports is presented in a fragmented fashion, and there is little possibility to use the results at a level beyond the anecdotal. In some cases, however, development-driven research has permitted to take us further, in particular with regard to the interpretation of Mesolithic pit hearths, the understanding of the complex structure of Mesolithic typochronological frameworks, and the use of plant-food resources in the Mesolithic.
**Maritime archaeology**

*Een lading proviand - archeobotanisch materiaal uit het 16de-eeuwse scheepswrak OE 34 (Flevoland)* (Popta, Y.T., van, Cappers, R.T.J.)

In the summers of 2011 and 2012 the International Fieldschool for Maritime Archaeology Flevoland (IFMAF) excavated a 16th-century shipwreck. The wreck was recognized as a Dutch vessel of the wijdschip type. It was found near the city of Lelystad and contained a rich variety of archaeological objects. Although the vessel was probably not directly involved in the Eighty Years’ War (1568-1648), it was provided with Spanish soldiers for protection against enemy attacks as it crossed the Zuiderzee. The wreck contained a unique spectrum of plant remains, which were found near the ship’s hearth. Most plants could be related to food (storage), cargo (hemp) or site-formation processes.

**Paleogeographical reconstruction of the Noordoostpolder between 1100 and 1400 AD** (Popta, Y.T., van)

Based on a combination of archaeological, geological and historical data, new reconstructions have been made of the Noordoostpolder region between 1100 and 1400 AD. It was presumed that most of the peatland already submerged between the Bronze Age and the Roman era, as is clearly depicted in the paleogeographic maps of the Netherlands by dr. P. Vos (2011). However, based on archaeological and geological datasets and executed in a spatial environment, it was proven that large parts of the research area were inhabited until (at least) the 13th century. Distinct density patterns in the distribution of archaeological finds pinpoint the locations of several medieval settlements and inhabited islands.

**Archaeological research on a new shipwreck near Rutten** (Popta, Y.T., van, Blok, K., Heise-Roovers, T.)

In February 2016, a farmer in the Noordoostpolder (province of Flevoland) discovered a new shipwreck on his lot when he was ploughing the land. This was consider a very rare situation as it is presumed that, in general, all shipwreck locations in the Noordoostpolder are known and examined. After the discovery of the wreck, no action was undertaken by the qualified authorities (municipality, province, state) and, as a consequence, part of the wreck was removed from the land by the farmer. As these actions were noticed by several researchers of the University of Groningen, an emergency excavation was executed, resulting in a cooperation between the Groningen Institute of Archaeology and the AWN-Flevoland. The project was completely run on voluntary basis. On site, three test trenches were dug that contained specific parts of the wreck. Based on the construction elements and the well-preserved (but seriously threatened) finds, it was concluded that the ship wrecked somewhere in the eighteenth century AD. The size of the timbers and frames point out that the wreck represents a large sea-going cargo vessel.

**Other projects**

*Use plants terps* (Schepers, M.)

An overview is made of all available crops and obvious use plants in the Dutch and German terps area. Various species turn out to be more common than generally assumed and unexpected differences show up between Germany and the Netherlands.
Synanthropic salt marsh (Nieuwhof, A., Schepers, M.)
The salt marshes surrounding the terp are re-examined, leading to the conclusion that human influence must have been visible and considerable from the beginning of habitation on the marshes onwards.

Terp composition in respect to earthquake risk in Groningen (Meijles, E.W., Aalbersberg, G., Groenendijk, H.A.)
The project involved an inventory of the available literature and other data sources on terp lithology in the Groningen Province, to improve the current risk and damage assessment models used for gas extraction induced earthquakes. Although the province houses over 900 terps and terp-like objects, the total amount of detailed lithological data is very small. Using GIS an attempt has been made to infer the average terp composition from digital elevation models and soil maps.

Terpen-en wierdenland - een verhaal in ontwikkeling (Aalbersberg, G, Wiersma, J, Schepers, M)
As part of a multi-disciplinary project, archaeological activities (e.g. hand coring, small test pits but also metal detection sessions for children and the opportunity for people to have their own finds identified) were held in six terp villages in Friesland and Groningen. Where possible, villagers can participate in the activities
Note: The work on this project is ongoing; the results are published and disseminated via lectures and the project website

Fieldwork and artefact processing

Arctic and Antarctic Studies
Western Finnmark, Norway, 19 — 27 June. Multi-Period Landscape Survey (Soroya Island).
Director : Damm, Jordan, Skandfer
Staff : Charlotte Damm, Peter Jordan, Marianne Skandfer
Participants : C.Damm, P.Jordan, M.Skandfer, E.Jorgensen, K.Vollan
Cooperation : Peter Jordan (GIA), Charlotte Damm, Marianne Skandfer, Erlend Jorgensen, Kenneth Vollan (Arctic University of Norway, Tromso)

Director : P.D. Jordan
Staff : M. Admiraal
Participants : M. Admiraal
Cooperation : RUG

Advent City, Svalbard, 5 — 19 August. Excavation and survey of mining settlement.
Director : P. Jordan
Staff : F. Kruse
Participants : G. Nobles, M. de Jong (external), R. van Bodegom (student), E. Leusink (Naturalis Leiden), B. Cornelder (Naturalis Leiden), L. Messingfeld (volunteer)
Cooperation : H. Kruijer (Naturalis Leiden)

**Classical and Mediterranean Archaeology**

**Ciampino (Roma),** 4 January — 26 February. Excavation of Archaic settlement site 3.

Director : S. Gatti
Staff : A. L. F. Fischetti, A. Arena
Participants : A. L. Fischetti, A. Arena
Cooperation : Soprintendenza Archeologia, Belle Arti e Paesaggio per l'Area Metropolitana di Roma, la Provincia di Viterbo e l'Etruria Meridionale

**La Sassa cave (Sonnino, Italy),** 15 February. 3D scan of La Sassa cave.

Director : L. Alessandri
Staff : L. Alessandri
Participants : L. Alessandri C. Tamburri
Cooperation : c. Tamburri (Tamburri S.r.l.)

**Terracina, Lazio, Italy,** 17 — 20 February. Sampling for Macrofossils at Femmina Morta 197 site, Fondi basin.

Director : W. van Gorp
Staff : W. van Gorp, L.A. Alessandri
Participants : M.H. Field (Leiden University) J. Sevink (University of Amsterdam)
Cooperation : M. di Vito (INGV)

**Ciampino (Roma),** 1 — 31 March. Restoration pottery from archaic site site 3.

Director : S. Gatti
Staff : A. L. Fischetti
Participants : A. L. Fischetti
Cooperation: Soprintendenza Archeologia, Belle Arti e Paesaggio per l'Area Metropolitana di Roma la Provincia di Viterbo e l'Etruria Meridionale

**Tall Hisban Excavations, Jordan, 11 May — 12 June 2017. Tall Hisban Excavations Field Season 2016.**

**Director:** B.J. Walker and O.S. LaBianca

**Staff:** Prof. Dr. B.J. Walker (University of Bonn), Prof. Dr. O.S. LaBianca (Andrews University), Dr. R. Bates (Andrews University), Ms. S. Elkins-Bates (Andrews University), Dr. J. Hudon (Andrews University), Ms. K. Curnutt (Andrews University), Ms. A.M. Hansen (University of Groningen)

**Participants:** Andrews University Staff Andrews University Bachelors Students University of Bonn MA and PhD Students Annemarie Schimmel Kolleg, University of Bonn Junior and Senior Research Fellows Missouri State University MA Students

**Cooperation:** Hisban Cultural Heritage Project

**Note:** A.M. Hansen coordinated all environmental sampling (macrobotanical, microbotanical, and zooarchaeological) for the Tall Hisban 2016 field season. She taught fieldwork methods to bachelors' students from Andrews University and led a workshop on macrobotanical sampling, floatation, sieving and basic approaches to archaeobotanical samples for all participants in the field season.

**Terracina, Lazio, Italy, 30 May — 15 June. Explorative coring campaign in the Agro Pontino.**

**Director:** W. van Gorp

**Staff:** W. van Gorp, L.A. Alessandri

**Participants:** B. Danhof, S. Filatova (students), O. Higgins, A. Strazzeri (Students Tor Vergata University, Rome), M. Doorenbosch (Leiden University, J. Sevink (University of Amsterdam)

**Cooperation:** M. Di Vito (INGV)

**La Sassa cave (Sonnino, Italy), 28 June — 15 July. Excavation of Copper Age and Middle Bronze Age burial place.**

**Director:** L. Alessandri

**Staff:** L. Alessandri, M. F. Rolfo

**Participants:** L. Alessandri (GIA staff), M. F. Rolfo (professor from University of Rome Tor Vergata), A. Barcellona, E. Fazi, A. Ferracci, R. Malinconico, O. A. Higgins, A. Strazzeri (students from University of Rome Tor Vergata), B. Danhof, S. Filatova, P. W. Hoebe, F. J. Koolstra (students from University of Groningen)

**Cooperation:** Mario F. Rolfo (Paletnology, University of Rome "Tor Vergata")
**Crustumerium, Rome**, 1 — 17 July. Excavation tombs-Settlement + material studies, 850-500 BC.

Director : Attema, P.A.J.
Staff : Boersma, S.E., Willemsen, S.L., van Oortmerssen, G.J.M.
Participants : See notes on Fieldwork Crustumerium of Prof. P.A.J. Attema
Cooperation : SS-Col Filipini, P. Beelli Marchesini, B.

**Lazio, Italy**, 24 — 29 July. Geophysical prospection of prehistoric remains in four limestone caves.

Director : W. de Neef
Staff : B. Ullrich
Participants : E. Witmer (student)
Cooperation : L. Alessandri (GIA), M. Rolfo (Università Roma 2 - Tor Vergata), R. Skeates (University of Durham), L. Silvestri (University of Durham), M. Angle (Soprintendenza Lazio), D. Mancini (Soprintendenza Lazio)

**Loc. Puntone, Scarlino, GR**, 2 — 22 October. Excavation of Early Iron Age productive site.

Director : P. A. J. Attema
Staff : M. R. Cinquegrana, L. Alessandri, W. de Neef, F. Ippolito
Participants : J. Sevink (em. Prof.University of Amsterdam)& E. Matricardi, D. Andreozzi (students University of Naples "Federico II"), A. Strazzeri (student University of Rome Tor Vergata)
Cooperation : B. Aranguren Torrini (Soprintendenza Archeologia Belle Arti e Paesaggio delle province di Siena, Grosseto, Arezzo), M. Pacciarelli (Prof. University of Naples "Federico II")

**Ciampino (Roma)**, 3 October — 30 November. Survay along via dei Laghi (Ciampino).

Director : S. Gatti
Staff : A. L. Fischetti
Participants : A. L. Fischetti
Cooperation : Soprintendenza Archeologia, Belle Arti e Paesaggio per l’Area Metropolitana di Roma la Provincia di Viterbo e l’Etruria Meridionale

**Puntone di Scarlino**, 3 — 23 October. Excavation of Late Bronze Age saltern.
Director: P.A.J. Attema with M. Pacciarelli and A.M. Aranguren

Staff: Director for GIA: Prof. dr. P.A.J. Attema, Organiser and Principle researcher: M.R. Cinquegrana (PhD GIA)

Participants: L. Alessandri (post-doc GIA) W. de Neef (PhD GIA) F. Ippolito (PhD GIA) plus 2 students from the Università degli Studi di Napoli Federico II Dipartimento di Studi Umanistici

Cooperation: - Soprintendenza Archeologia, Belle arti e paesaggio per le province di Siena (A.M. Aranguren) - Università degli Studi di Napoli Federico II Dipartimento di Studi Umanistici (Prof. dr. M. Pacciarelli)

Greek Archaeology


Director: H.R. Reinders (emeritus), S. Voutsaki (acting), V.V. Stissi, V. Rondiri

Staff: T.M. Dijkstra (RUG) (Field director), E. Heymans (UvA) (Field director), D. Efstathiou (EfAMag), I. Mamaloudi (EfAMag), E. Stamelou (EfAMag)

Participants: C. van Toor, M. Nijboer, I. de la Rie, D. Middelkamp (2nd year students RUG); L. Smit (ReMa student, RUG) K. Blok, J. van der Heul, P. Swart, R. Brandhoff (alumni RUG, volunteers); M.J. Haagsma and students/volunteers from the University of Alberta, Canada; students from the University of Amsterdam.

Cooperation: V.V. Stissi (UvA) V. Rondiri (Ephorate of Magnesia)


Director: S. Voutsaki

Staff: I. Moutafi (Wiener Laboratory, ASCS), S. Chlouveraki (INSTAP Centre of East Crete, ASCS)

Participants: Y. de Raaff, N.R. Bosma, R. Lenting (students)

Cooperation: Laconia Ephorate, Ministry of Culture, Greece Athens Archaeological Society

Note: This was the last excavation campaign at the North Cemetery of Ayios Vasilios. The pit to the south of the built tomb 21 was excavated; it contained assembled bones of ca. 7 burials. The trench was covered; the entire area of the North Cemetery has now been covered, awaiting the plan for the management of the site.

Pisidia, Turkey, 19 — 29 July. Survey of necropoleis and funerary materials in NW Pisidia.

Director: Bilge Hürmüzlü
Ayios Vasilios, 22 October — 12 November. Survey at Mycenaean settlement of Ayios Vasilios.

Director : S. Voutsaki, A. Vasilogamvrou (Ayios Vasilios Excavations Project)
Staff : C.W. Wiersma (Field Director), S. Boersma
Cooperation : Laconia Ephorate, Ministry of Culture, Greece Athens Archaeological Society, Archaiologiki Etteria

Note : The second campaign of the Ayios Vasilios field-walking survey took place in Oct - Nov 2016. The survey centred on the hill to the east of the Ayios Vasilios site in order to establish the extent of the site in this direction. A large number of students from Groningen and elsewhere took part in the field-walking and the recording and processing of the finds.

Thaj, Saudi-Arabia, 7 — 12 November. Excavation and survey of Hellenistic site and burial grounds.

Director : Ahmad Al-Jallad, Jérôme Rohmer, Mahmud Al-Hajiri
Staff : L. de Jong, staff from University of Strasbourg, Saudi Antiquities Service
Participants : -
Cooperation : Leiden University, Centre national de la recherche scientifique (CNRS), Saudi Commission for Tourism and National Heritage


Director : S. Arnoldussen
Staff : J. van der Velde, R. Rap, B.L.M. van Wijk
Participants : First year archaeology students Groningen University
Cooperation : R. Popken (Natuurmonumenten), M. Nieuwenhuis (Gemeente Westeinde), W.A.B. van der Sanden (provincie Drenthe)
Note: First year fieldschool (training dig) in the Westeinde - Noormansveld Celtic field complex.

**Wijnaldum - Dorpsterp zuid**, 7 — 14 April. Excavation of the south flank of the dorpsterp of Wijnaldum.

Director: G. Aalbersberg  
Staff: G. Aalbersberg  
Participants: E. Scheele S. Tiebackx J. Welbedacht  
Cooperation: none

**Dronten**, 4 — 15 July. Excavation of 18th century shipwreck at lot OO64A.

Director: A.F.L. van Holk  
Staff: d.velthuizen, t.heise-roovers, s.tiebackx, y.t.van.popta  
Participants: b.j.t.cornelis, j.m.bijlstra, M. Braaksma, W. Huffstadt, m. jans, h. vink, G.R.Dijkstra  
Cooperation: d.velthuizen en t.heise-roovers (NLE)

**Dronten**, 15 — 26 August. Excavation 18th century shipwreck at lot OO64A.

Director: A.F.L. van Holk  
Staff: E. Bolhuis, D. Velthuizen, T. Heise-Roovers  
Participants: b.j.t.cornelis, j.m.bijlstra, M. Braaksma, W. Huffstadt, G.R.Dijkstra, R. van Haarlem, M. van Huygevoort  
Cooperation: D. Velthuizen en T. Heise-Roovers (NLE)

**Rutten**, 26 September — 7 October. Excavation of 18th century shipwreck at lot NK 47II.

Director: A.F.L. van Holk  
Staff: d.velthuizen, t.heise-roovers, s.tiebackx, y.t.van.popta, K. Blok  
Participants: d.velthuizen t.heise-roovers s.tiebackx y.t.van.popta K. Blok  
Cooperation: D. Velthuizen en T. Heise-Roovers (NLE)

**Rutten**, 26 September — 7 October. Test trench excavation of shipwreck NK 47-II near Rutten.

Director: A.F.L. van Holk
Staff : Y.T. van Popta, K. Blok, T. Heise-Roovers
Participants : S. Tiebackx, M. Straatman
Cooperation : D. Velthuizen (NLE), Jan Boes (AWN Flevoland), Archie Ermans (AWN Flevoland), Saskia Thijsse (AWN Flevoland)

**Zooarchaeology**

**Turkey**, 13 June — 30 July. Excavations in western Turkey (Kaymakci, Gordion, Klazomenai).

Director : C. Cakirlar
Staff : C. Cakirlar
Participants : C. Cakirlar
Cooperation : Chris Roosevelt (Koc University, Istanbul), Yasar Ersoy (Hitit University), Brian Rose (UPenn)
Archaeobotany

Paesens, 1 March — 30 September. Experimental agriculture.

Director : M. Schepers
Staff : M. Schepers
Participants : M. van Rijn, Y. van Popta
Cooperation : Fryske gea
Publications

Arctic and Antarctic Studies

Report

Fugleovervåkning ved etablering av nytt geodesieanlegg ved Ny-Ålesund: Årsrapport for 2015

Human impact at Advent City (RiS ID 10516): History in photographs I: site formation processes

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Kruse, F. 2016 Groningen: Arctic Centre.

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Het arctisch onderzoek aan ganzen, steltoppers en zeevogels

Mining in the European Arctic

Nederlandse Voetsporen in de poolgebieden

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A Comparative Perspective on the 'Western' and 'Eastern' Neolithics of Eurasia: Ceramics, Agriculture and Sedentism

Current and future levels of mercury atmospheric pollution on a global scale

Die Entwicklung der britischen Territorialansprüche in Spitzbergen zwischen 1904 und 1953

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Prehistoric Uses of Circumpolar Mineral Resources: Insights and Emerging Questions from Arctic Archaeology

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Technological Analysis of the World's Earliest Shamanic Costume: A Multi-Scalar, Experimental Study of a Red Deer Headdress from the Early Holocene Site of Star Carr, North Yorkshire, UK

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The use of ground penetrating radar (GPR) in the investigation of historical quarry abandonment in Svalbard

Special issue editing

Holocene Hunter-Gatherer Archaeology of Northern Eurasia

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Doctoral Thesis

Before the Iron Age: The oldest settlements in the hinterland of the Sibaritide (Calabria, Italy)

La produzione della ceramica geometrica enotria nella Sibaritide durante l’età del Ferro: Studio comparativo sulle tecnologie di foggatura

Surface <> Subsurface: A methodological study of Metal Age settlement and land use in Calabria (Italy)
Book

Crustumerium: Death and Afterlife at the Gates of Rome

De atlas van Beckeringh: het Groninger landschap in de 18e eeuw

Early states, settlements and territories in protohistoric Central Italy: Proceedings of the specialist workshop on state formation in Italy (Groningen 2013)

Soils and Soil Landscapes of the Raganello River Catchment (Calabria, Italy)

Poster

Investigating rural pottery production: a view from the Pontine Region.
Tol, G., Borgers, B. & de Haas, T. 11-Jan-2016

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Hierarchical and federative polities in protohistoric Latium Vetus. An analysis of Bronze Age and Early Bronze Age settlement organization

Local Pottery Production in the Pontine Region, Central Italy

Chapter

Devilish details: Fine-tuning survey techniques for ephemeral sites

Excavation of block-lifts in the laboratory of the Groningen Institute of Archaeology

Introduction

Is the tangling of events in the Mediterranean around 770-760 BC in the Conventional Absolute Chronology (CAC) a reality or a construct?
Material culture and funerary rituals

More examples of restored ceramic objects from Crustumerium

Power at a Distance: The Hellenistic Rural Exploitation of the ‘Farther’ Chora of Chersonesos (Crimea, Ukraine) from the Perspective of the Džarylgach Survey Project

Preface

Real animals and mythical creatures (Mischwesen) on Orientalising pottery

The burial grounds in the Archaic period

The Pontine region under the early Republic: A Contested Landscape

Article
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Exploring territories: Bubble Model and Minimum Number of Contemporary Settlements: A case study from Etruria and Latium Vetus from the Early Bronze Age to the Early Iron Age

Kleine centra in Romeins Centraal-Italië: resultaten van het Minor Centers Project

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L’utilizzo delle cavità naturali nella media età del Bronzo: nuovi dati dal Lazio meridionale

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Egypt in the First Millennium AD: Perspectives from new fieldwork
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Review of: E. Blake, Social Networks and Regional Identity in Bronze Age Italy

Other contribution
Da Pomptinae Paludes all’Ager Pompitanus. Archeologia e storia della pianura pontina: Le ricerche archeologiche del Groningen Institute of Archaeology (GIA)
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Greek Archaeology
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Bronze Age Ceramics

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Article

Αρχαιολογική ερευνα επιφανειας γύρω απω τον Άγιο Βασιλείο

Isotopic (13C, 15N) investigation of diet and social structure in Early Iron Age Halos, Greece

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Prehistoric and Protohistoric Archaeology of North-west Europe

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Dwelling on the edge of the Neolithic: Investigating human behaviour through the spatial analysis of Corded Ware settlement material in the Dutch coastal wetlands (2900-2300 calBc)

Report

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Book

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Swifterbant Pionieren in Flevoland 6500 jaar geleden

Uncertainty and sensitivity analysis in archaeological computational modeling

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Poster

Back to Ezinge: The habitation history of a terp settlement
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Conference contribution

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De lege vierde eeuw

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Early Bronze Age Foodways in the Aegean: Social Archaeozoology on the Eastern Side

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Sifting through single grave settlements: Keinsmerbrug and Mienakker in the Noord Holland tidal area (the Netherlands)

Sifting through Single Grave settlements: Keinsmerbrug and Mienakker in the Noord Holland tidal area (the Netherlands)

**Swifterbant: nieuw onderzoek**

**Swifterbant en het publiek: initiatieven en participatie**

**Swifterbant-cultuur**

**Terpenbouw en dorpsvorming in het Friese kustgebied tussen Vlie en Eems in de volle middeleeuwen**

**Trechterbeker-cultuur**

**Valthe: trechterbeker-cultuur bij de Valther Tweeling**

**Vegetatie en gebruik van plantaardige bronnen**

**Zesduizend jaar gebruik van hout als grondstof**

**Article**

**A bronze harvest: Dutch Bronze Age sickles in their European context**

**Bibliography of Wim van Zeist**

**Botanisch onderzoek naar de samenstelling van de magering van kleitichels uit Karanis (Egypte)**

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De biotoop van klooster Yesse in Haren: Structuur- en architectuuraspecten van een kloosterterrein.

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Living on the Edge: Synanthropic Salt Marshes in the Coastal Area of the Northern Netherlands from around 600 BC

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Letter
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Entry for encyclopedia/dictionary
Lemma’s: C-14 onderzoek in Fryslân; Crematie (archeologisch); Grafritueel in de IJzertijd en Romeinse tijd in het terpengebied; Inhumatie; Paleobotanie in Fryslân; Ritueel, archeologische sporen van

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Societal impact pitch for 'Lost building traditions' project
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