



XXI SEAC conference

*Astronomy:
Mother of Civilization and
Guide to the Future*



Programme

1st September to 8th September 2013

at the National and Kapodistrian University of Athens, the National Archaeological Museum,
the Numismatic Museum,
Société Européenne pour l'Astronomie dans la Culture



Cover:

Helios (the Sun) and Eos (the Dawn) drive a chariot in the sky.

EAM/NAM 17983. Attic red figure pyxis. 430 BC. Lid Painter.

Acknowledgment Credit line: National Archaeological Museum, Athens

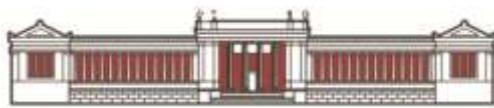
Copyright of the cover photo © Hellenic Ministry of Culture and Sports/Archaeological Receipts Fund.



ORGANIZERS OF THE CONFERENCE:

**SEAC,
the National and Kapodistrian University of Athens,
the National Archaeological Museum, Athens, Greece and
the Numismatic Museum, Athens, Greece**

**SUPPORTERS:
AINIANES¹**



¹ Since 1976 “the Aenianes”, the educational & cultural Association of Ipati has gone through a significant progress in the cultural and social life of Fthiotis regional area. It has almost 300 active members and consists of a women group, environmental branch and also a “blood bank”. Its dancing group consists of 100 amateur dancers, of all age groups, and aims to revive and maintain the tradition and unique customs of Ipati. It has take part in lots of cultural events and has won several prizes and honors e.g. 1st prize in the central Greece dancing contest (1980) , 1st prize in the pan-Hellenic dancing and singing contest (1984) and more.

Société Européenne pour l'Astronomie dans la Culture
The XXI SEAC Conference, 2013, Athens, Greece
Monday 2nd September to Friday 6th September 2013.

Conference SEAC 2013 has the theme “Astronomy, mother of Civilization and Guide to the Future”. Emphasis will be to reveal the crucial role of astronomy in societies, countries, continents, at all eras.

Since the dawn of humanity Astronomy is the cardinal socio-anthropological activity that led to the development of Culture, Mathematics, Philosophy and Civilization.

Human, ANTHROPOS [ΑΝΘΡΩΠΟΣ] in Greek according to a popular etymology means the one that looks up, sees the sky, and admires the harmony of the celestial sphere with the stars and the planets and develops the will to try to understand and explain the Cosmos [ΚΟΣΜΟΣ means ornament in Greek]. In their effort to understand the Cosmos humans develop logic, causality, and civilization. Philosophy is born.

The evolution of astronomy leads to the great scientific revolution and the modern world, through Galileo, Copernicus, Kepler and Newton, to mention only a few of the giants that set the foundations of the modern world.

In our days, Astronomy strongly refers to the global heritage of all the human civilizations, as a bond and a point of reference between them, while it opens new roads for our globalized society, towards the space exploration, and the gigantic leap of mankind towards leaving its place of birth, our planet Earth, and expanding to new frontiers. Astronomy, as a science, and as the fountain of various technological achievements inspired by the needs of space exploration, opens novel roads towards our common fate, while it always remind us the common bond which exists between cultures and civilizations.

This is the canvas SEAC 2013 conference will be interwoven, in the very nice environment of central Athens, at the National and Kapodistrian University of Athens(central building), the National Archaeological Museum and the Numismatic Museum (H. Schliemann's house).

We will visit the two ancient observatories, the 5th century BC observatory of Meton at Pnyx and the 2nd-1st century BC observatory and astronomical clock of Andronikos of Kyrrhos (the so called Aerides – tower of winds at Aeolos street). The Academy of Plato and the Lyceum of Aristotle, the University of Proclus (just opposite Dionysus theatre), Keramikos, Hadrian Library (and University and research center) and other libraries, the Agora are relatively close and worth visiting.

The traditional Welcome Drink and Registration will be on Sunday the 1st September 2013, in the evening, from 8 pm to 10 pm (20:00 to 22:00) at the Numismatic Museum (H. Schliemann's House), at Eleftheriou Venizelou street (usually called odos Panepistimiou [University street]), number 12, in central Athens, near SYNTAGMA square.

MONDAY 2 SEPTEMBER 2013

8:15 – 9.00 **REGISTRATION**

9:00 – 10:00 MAIN HALL OF UNIVERSITY OPENING CEREMONY

10:00 – 10:30 COFFEE

THEATRE DRACOPOULOS

10:30 – 13:30 SESSION Astronomy and Philosophy

CHAIRPERSONS: Elio Antonello, Michael A. Rappenglück

10.30 *Plato as Astronomer (invited)*,

Konstantinos Niarchos, University of Athens, Greece, cgniarchos@ppp.uoa.gr

10.50 *The dichotomy between ‘practical’ and ‘theoretical’ astronomy in Plato’s school (invited)*

Elio Antonello, INAF- Osservatorio Astronomico di Brera elioantonello@brera.inaf.it

11.10 *Cosmological Aspects of Empedocles*

Nicos Georgakellos, independent researcher, nigeorgakellos@gethanco.gr

11.30 *The Cosmic Deep Blue: The significance of the celestial water world sphere across cultures (invited)*

Michael A. Rappenglück, Adult Education Centre and Observatory, Gilching, E-mail: mr@infis.org

11.50 *Cosmic Dance. Correlations Between Dance and Cosmos-Related Ideas Across Ancient Cultures (invited)*

Barbara Rappenglueck Institute for Interdisciplinary Science, Gilching, Germany, E-mail: Barbara.Rappenglueck@evtheol.uni-muenchen.de

12.10 *Homeric Lycabas (the sunlight is gone), the Apollo’s Celebration and the New Moon after the Autumn Equinox (invited)*

Papamarinopoulos S.1, Preka-Papadema P. 2, Mitropetros P. 3, Mitropetrou H. 3, Lekakis G. 4, Sarantitis G. 4, Antonopoulos P. 1

1 University of Patras, Dept of Geology, Greece, 2 University of Athens, Dept of Astrophysics, Greece (ppreka@phys.uoa.gr), 3 Keratsini, Greece, 4 Athens, Greece

MONDAY 2 SEPTEMBER 2013**12.30 *The ancient Greek conical sundial of the National Archaeological Museum of Athens***

Evangelia Panou, National and Kapodistrian University of Athens, Athens, Greece,
evipanou184@yahoo.gr

12.50 *Ancient Greek astronomers' contribution to accurate time measurements in antiquity*

Evangelia Panou, National and Kapodistrian University of Athens, Athens, Greece,
evipanou184@yahoo.gr

13.10 *John Philoponus on the Movement of Celestial Bodies,*

Konstantinos Kalachanis, Section of Astrophysics, Astronomy and Mechanics, Faculty of Physics,
National and Kapodistrian University of Athens

DISCUSSION**13:30 – 15:00 LUNCH****15:00 – 17:00 SESSION Astronomy and Philosophy****CHAIRPERSONS Silvia Motta, Konstantinos Kalachanis,****15.00 *Homeric Calendar***

George Sarantitis Researcher of History E-mail: gs@platoproject.gr

15.20 *The astronomical significance of Atlas' myth,*

Elena Mitropetrou, University of Patras, mitropetrou@yahoo.gr

15.50 *William Shakespeare and the Philosophy of Astronomy (invited),*

Nicholas Campion University of Wales Trinity Saint David, n.campion@tsd.ac.uk

16.10 - 16.20 DISCUSSION**16.20 SESSION Archaeoastronomy in Mesoamerica****CHAIRPERSONS Silvia Motta, Konstantinos Kalachanis,****16.20 *The Classic Maya 6940-day/260-day cycle revisited (invited)***

Stanislaw Iwaniszewski, Escuela Nacional de Antropología e Historia – Instituto Nacional de Antropología e Historia, Mexico City, siwanisz@yahoo.com

MONDAY 2 SEPTEMBER 2013

16.40 An archaeoastronomical analysis of the Mayan “E-group” in Mesoamerica

Silvia Motta 1, Adriano Gaspani 2, 1 I.N.A.F. Istituto Nazionale di Astrofisica silvia.motta@brera.inaf.it
adriano.gaspani@brera.inaf.it, 2 Osservatorio Astronomico di Brera- Milano, Via Brera, 28, 20121 Milano – Italy

17:00 – 17:30 COFFEE

17:30 – 19:30 SESSION Archaeoastronomy in North and South America

CHAIRPERSON Stanislaw Iwaniszewski, Richard R. Zito

17.30 Peruvian Astronomy Before the Inca, Malville, J. McKim Department of Astrophysical and Planetary Sciences, University of Colorado, Boulder, Colorado, USA, kimmalville@hotmail.com

17.50 The Huaca Sanctuary Below Machu Picchu,

Gullberg, Steven R.¹ Malville, J. McKim²

1. University of Oklahoma, Norman, Oklahoma, USA, E-mail: srgullberg@ou.edu, 2. University of Colorado, Boulder, CO, USA; kimmalville@hotmail.com

2. Department of Astrophysical and Planetary Sciences, University of Colorado, Boulder CO, USA

18.10 Possible Mesoamerican Naked-Eye Observation of Sunspots-VI: Evidence from Yaxchilan Lintel 48

Richard R. Zito Summerhaven Observatory, P.O. Box 663, Mt. Lemmon, Arizona 85619, U.S.A.

rrz@u.arizona.edu

18. 30 Possible Mesoamerican Naked-Eye Observation of Sunspots-V: Evidence from Río Azul Tomb I Murals

Richard R. Zito Summerhaven Observatory, P.O. Box 663, Mt. Lemmon, Arizona 85619, U.S.A. E-mail: rrz@u.arizona.edu

18.50 El Mirador: a new astronomical research at Machu Picchu (invited)

Fernando Astete Victoria 1, Mariusz Ziolkowski 2, and Jacek Kościuk 3

1 Parque Arqueológico Nacional de Machu Picchu , Dirección Regional de Cultura Cusco. E-mail: fastetemachupicchu@yahoo.es

2 Centro de Estudios Precolombinos, Universidad de Varsovia, Polonia. E-mail: mziolkowski@uw.edu.pl

3 Laboratory of 3D Scanning and Modelling, Institute of History of Architecture, Arts and Technology, Wrocław University of Technology. E-mail: j.kosciuk@archikon.wroc.pl

On the solar corona Petroglyph in Chaco Canyon, (Session: Poster 3 minutes)

Vaquero, José M.¹ Malville, J. McKim (1) Departamento de Física Centro Universitario de Mérida, Universidad de Extremadura, Spain

(2) Department of Astrophysical and Planetary Sciences, University of Colorado, Boulder CO, USA

DISCUSSION

MONDAY, 2 SEPTEMBER 2013

8:15 – 9.00 **REGISTRATION**

9:00 – 10:00 **MAIN HALL OF UNIVERSITY OPENING CEREMONY**

10:00 – 10:30 **COFFEE**

THEATRE ARGYRIADES

10:30 – 13:30 **SESSION Theory and Methodology of Archaeoastronomy**

CHAIRPERSON: Raul Perez-Enriquez, Marcello Ranieri

10.30 Towards Serious Gaming for Archaeoastronomical Simulation (invited)

Georg Zotti Ludwig Boltzmann Institute for Archaeological Prospection and Virtual Archaeology, Vienna, Austria, Georg.Zotti@univie.ac.at

10.50 Digging the archives: the orientation of Greek temples and their diagonals. (invited)

Marcello Ranieri, Istituto Nazionale di Astrofisica INAF-Roma, Roma, Italy, marcelloranieri@tiscali.it

11.10 Plato's Triangle and gnomonic factor: an application to Herodotus' oracles (invited)

Raul Perez-Enriquez University of Sonora, Hermosillo, México, E-mail:rperez@correo.fisica.uson.mx

11.30 Time Models and archaeocalendars in the Aegean

Minas Tsikritsis¹, Xenophon Moussas², Dimitris Tsikritsis³

(1) Directorate of Secondary Education, Department of Informatics and New Technologies, Heraklion 71202, Crete, Greece, mtsikritsis@gmail.com (2) Astronomical Observatory of the National and Kapodistrian University of Athens, Athens, Greece, xmoussas@phys.uoa.gr xmoussas@gmail.com (3) University of Edinburgh, School of Engineering, Edinburgh, UK , E-mail: dimitris.tsikritsis@gmail.com

11.50 Orientations of Ancient Egyptian Heritage Sites Using Traditional and Remotely sensed Data,

Prof. Shaltout Moslem (1) and Dr. Ramzi Ahmed (2) National Research Institute of Astronomy and Geophysics (NRIAG) and (2) National Authority for Remote Sensing and Space Sciences (NARSS), Cairo, Egypt. mosalam_shaltout@yahoo.com, Ahmedasi@hotmail.com

12.10 Karnak Temple Orientation Based on Traditional and Remote Sensing Method: A Comparative Study (invited)

MONDAY 2 SEPTEMBER 2013

Prof. Shaltout Moslem (1) and Dr. Ramzi Ahmed (2), (1) National Research Institute of Astronomy and Geophysics (NRIAG) and (2) National Authority for Remote Sensing and Space Sciences (NARSS), Cairo, Egypt. *mosalam_shaltout@Yahoo.com, Ahmedasi@hotmail.com*

12.30 Greek roots of Astrophysics

Xenophon Moussas *Astronomical Observatory of the National and Kapodistrian University of Athens,*
xmoussas@phys.uoa.gr xmoussas@gmail.com

DISCUSSION**13:00 – 15:00 LUNCH****15:00 SESSION Theory and Methodology of Archaeoastronomy****CHAIRPERSONS Flora Vafea, Fernando Pimenta**

15.00 Appia Regina Viarum: Archaeoastronomy as a key to the project of a Roman masterpiece.
(invited)

Giulio Magli (1), Eugenio Realini (2), Mirko Reguzzoni (3), Daniele Sampietro (4)

1 Faculty of Civil Architecture, Politecnico di Milano, Milano, Italy

2 Research Institute for Sustainable Humanosphere, Kyoto University, Japan

3 Department of Civil and Environmental Engineering, Politecnico di Milano, Milano, Italy

4 GreD s.r.l., c/o Politecnico di Milano, Polo Territoriale di Como, Como, Italy

15.20 Do Mycenaean Tholos Tombs Encode Astronomical Alignments? (invited, 20 min. including discussion)

Mickelson, Michael E.¹, Mickelson, Andrew M.²

1 Denison University, Granville, Ohio, USA, E-mail: mickelson@denison.edu

2 University of Memphis, Memphis, Tennessee, USA, E-mail: amicklsn@memphis.edu

DISCUSSION**15.45 SESSION Astronomy in Europe and the Mediterranean at Historical Times****CHAIRPERSONS Flora Vafea, Fernando Pimenta**

15.45 From Alexandria to Rome: Poetical Astronomy and Female Psychology (invited)

Magda El-Nowieemy, Professor of Latin Literature, Alexandria University, Egypt

MONDAY 2 SEPTEMBER 2013

16.05 Astronomical Changes in Relation to Characters' Attitudes and Destiny in Senecan Tragedy

Sarah Sabri, Demonstrator, Department of Archaeology & Graeco-Roman Studies, Faculty of Arts, Alexandria University, Alexandria, Egypt

16.25 A rapprochement to the early History of the Astrolabe (invited)

Flora Vafea, Ph.D. History of Science & Technology, Univ. Paris 7, Abet Greek School in Cairo

16.45 – 17.15 DISCUSSION

17:00 – 17:30 COFFEE

17:30 – 19:30 SESSION European Prehistory, Folklore and Archaeoastronomy

CHAIRPERSONS Flora Vafea, Magda El-Nowieemy

17.30 Rock caves and large rock piles in Azores islands – a possible solar ritual association?

(invited)

F. Pimenta¹ N. Ribeiro², A. Joaquinito³, A. Rodrigues⁴, A. Costa⁵

¹ APIA, Lisboa, Portugal, E-mail: fernando.pimenta@apia.pt

² APIA, Lisboa, Portugal, E-mail: nuno.ribeiro@apia.pt

³ APIA, Lisboa, Portugal, E-mail: anabela.joaquinito@apia.pt

⁴Universidade dos Açores, Terceira, Portugal, E-mail: felix@uac.pt

⁵Universidade do Porto, Terceira, Portugal, E-mail: antonietta_c@hotmail.com

17.50 Delphi and cosmovision: apollo's absence to hyperboreans and the time of consulting the oracle (invited)

Ioannis Liritzis and Belen Castro, University of the Aegean, Lab of Archaeometry, Dept of Mediterranean Studies, 1 Demokratias Str, Rhodes 85100, Hellas (liritzis@rhodes.aegean.gr)

18.10 Solar and Lunar alignments on the Island of Mull, western Scotland

Thomas T. Gough Independent Scholar, Parkhead Farmhouse, Ballindalloch, Banffshire, Scotland, UK,

18.30 The Great Oak and other calendric myths of the Baltic Finns (invited)

Marianna Ridderstad Dept. of physics, Div. of geophysics and astronomy, University of Helsinki, Finland, Email: marianna.ridderstad@helsinki.fi

DISCUSSION

TUESDAY 3 SEPTEMBER 2013

THEATRE DRACOPOULOS

8:30 SESSION Astronomy and Archaeoastronomy in Africa

CHAIRPERSON Mariusz Ziolkowski, Vance Tiede

8.30 *Sun's Observation, Nile River and Mathematics: Dawn of civilization,*
Raul Perez-Enriquez², Julio Montané²

1 University of Sonora, Hermosillo, Sonora, México, E-mail: rperez@correo.fisica.uson.mx

2 Instituto Nacional de Antropología e Historia, Hermosillo, Sonora, México, E-mail:
juliomontanemarti@gmail.com

8.50 SESSION Astronomy in Europe and the Mediterranean at Historical Times

CHAIRPERSON Mariusz Ziolkowski, Vance Tiede

8.50 *Gian Rinaldo Carli and Atlantis,*
Elio Antonello, INAF- Osservatorio Astronomico di Brera elio.antonello@brera.inaf.it

9.10 *Greco-Roman Zodiac Sundials and their links to Mesopotamia and Qumran (invited)*
Helen R. Jacobus, University College London, UK, jacobus.helen@gmail.com

9.30 *Graeco-Roman Astro-Architecture?: The Temples of Pompeii (invited)*
Vance Tiede, Astro-Archaeology Surveys, Inc., CT, USA, vance.tiede@aya.yale.edu

DISCUSSION

10:00 – 10:30 COFFEE

10:30 – 13:30 SESSION Astronomy in Europe and the Mediterranean at Historical Times

CHAIRPERSON Mariusz Ziolkowski, Vance Tiede, Helen R. Jacobus

10.30 *The 1st August at Lugdunum (Lyons, France)*
Marco V. García Quintela³, A. César González-García

² Speaker or corresponding author

TUESDAY 3 SEPTEMBER 2013

1 Santiago de Compostela University, Santiago de Compostela, Spain, E-mail:
marco.garcia.quintela@usc.es

2 Institute of Heritage Sciences, CSIC, San Roque 2, Santiago de Compostela, Spain, E-mail:
a.cesar.gonzalez-garcia@incipit.csic.es

10.50 Realism vs Verisimilitude in Astronomical Contents of Renaissance Works of Art: the Borderline Case of Raphael's Astrologia in the Stanza della Segnatura (invited)

Giancarlo Gandolfi, Planetario e Museo Astronomico, Roma, Italy, giangiacomo.gandolfi@gmail.com

11.10 The Cross Torch of Eleusis & The Astronomical Secret of the Mysteries

George Latura Independent Researcher, Connecticut, USA, gibeke@me.com

11.30 DISCUSSION

12.00 SESSION European Prehistory, Folklore and Archaeoastronomy

CHAIRPERSON Mikhail S. Dement'ev, Olgica Kuzmanovska

12.00 The Hellenic Writing Linear A', the stars and the foundation of the Chinese Writing

Panagiotis D. Gregoriades, Independent Researcher and Writer, Athens, Greece

12.20 Minoan prehistoric solar calendars carved in stones, the riddle of kernoī. (10 MINUTES)

Alexios Pliakos Pliakos Language School, Athens, Greece

12.40 A new Phaestos calendar or Saros cycle? (10 MINUTES)

Alexios Pliakos Pliakos Language School, Athens, Greece

13.00 Comparative study of an Aegean and two Knossian kernoī, as lunisolar calendars. (10 MINUTES)

Alexios Pliakos Pliakos Language School, Athens, Greece

DISCUSSION

³

Speaker or corresponding author

TUESDAY 3 SEPTEMBER 2013

13:30 – 15:00 LUNCH**15.00 SESSION European Prehistory, Folklore and Archaeoastronomy****CHAIRPERSON Andrei Prokhorov,****15.00 *The astronomical relation of the ritual platforms of the mountain sanctuary Kokino (invited)*****Olgica Kuzmanovska^{1 4}, J. Stankovski²**

1 Faculty of Natural Sciences and Mathematics, P.O. Box 162,

Skopje, Former Yugoslavian Republic of Macedonia, olgicak@pmf.ukim.mk

2 National Museum, Kumanovo, Former Yugoslavian Republic of Macedonia,

stankovskijovica@yahoo.com**15.20 *Research of the Greek and Biblical myths by astronomical methods*****Mikhail S. Dement'ev, Polytechnical Institute (branch) of the Ural Federal University, in Kamensk-Uralskyi, Russia, E-mail:Mikhail_Dementev@rambler.ru****15.40 DISCUSSION ON ALL PREVIOUS SESSIONS****16.10 POSTER VIEWING****17:00 – 17:30 COFFEE****17:30 – 19:30 SESSION Astronomy in Europe and the Mediterranean at historical times****CHAIRPERSON Andrey V. Kuzmin, Prokhorov Andrei,****17.30 *Origins of Kepler's thought (invited)*****Panagiotis Papaspirou, Section of Astrophysics, Astronomy and Mechanics, Department of Physics, University of Athens, p.papaspirou973@gmail.com****17.50 *Kepler's harmonic law*****Panagiotis Papaspirou, Section of Astrophysics, Astronomy and Mechanics, Department of Physics, University of Athens, p.papaspirou973@gmail.com****18.10 *The Sky of Johann Bayer: Early Catalog of Binary Stars*****Andrey V. Kuzmin The S.I. Vavilov Institute of History of Science and Technology, Moscow, Russia****18.30 *Ancient Portuguese nautical and geographical information*****José Manuel Malhão Pereira, Academia de Marinha, Centro de História e Filosofia das Ciências, Faculdade de Ciências, Lisboa, Portugal**

TUESDAY 3 SEPTEMBER 2013

18.50 *The astronomical phenomena as a ground for a mythological sacral image of Prince Vseslav the Magician (Sorcerer) of Polotsk*

Prokhorov Andrei, Belarusian State University, Minsk, Belarus, E-mail: andrei_prokhorov@mail.ru

DISCUSSION

TUESDAY 3 SEPTEMBER 2013

AMPHITHEATER ARGYRIADES

8:30 - 10:00 SESSION European Prehistory, Folklore and Archaeoastronomy

CHAIRPERSON Vito Polcarno, Mare Kõiva

8.30 New archaeoastronomical findings in the Jato Valley (Sicily)

Alberto Scuderi⁵, Vito F. Polcaro², Ferdinando Maurici

1 Gruppo Astronomico della Valle dello Jato, via Europa 12, 90040 San Cipirello (PA), Italy,
scuderialberto@alice.it

2 INAF-IAPS, Via del Fosso del Cavaliere 100, 00133 Rome, Italy, and ACHe, Ferrara University
vitofrancesco.polcaro@iaps.inaf.it

3 Director, Archaeological Park of Monte Jato, 90040 San Cipirello (PA), Italy,
parco.archeo.iato@regione.sicilia.it

8.50 An Evanescent Vision of the Divine. The Equinoctial Sun at the Iberian Sanctuary of Castellar

César Esteban⁶, Carmen Rísquez, Carmen Rueda

1 Instituto de Astrofísica de Canarias and Departamento de Astrofísica, Universidad de La Laguna, 38200 – La Laguna, Tenerife, Spain, cel@iac.es

2 Instituto Universitario de Investigación en Arqueología Ibérica, Universidad de Jaén, crisquez@ujaen.es

3 Instituto Universitario de Investigación en Arqueología Ibérica, Universidad de Jaén, caruegal@ujaen.es

9.10 Contemporary Rituals Addressing the Sun and Moon

Mare Kõiva¹; Andres Kuperjanov²

1 Estonian Literary Museum, Department of Folkloristics, Tartu, Estonia, mare@folklore.ee

2 Estonian Literary Museum, Department of Folkloristics, Tartu, Estonia, cps@folklore.ee

DISCUSSION

10:00 – 10:30 COFFEE

10:30 – 13:30 SESSION Astronomy in Europe and the Mediterranean at Historical Times

CHAIRPERSON Vito Polcarno, Mare Kõiva

10.30 Konstantinou Gordatou Horizontal Dial and Portable Solar Quadrant

²

Speaker or corresponding author
 Speaker or corresponding author

⁶

TUESDAY 3 SEPTEMBER 2013

Dionysios Kriaris, Mathematician, Maker of Antique Instruments, Athens, Greece

11.50 *The 1st August at Lugdunum (Lyons, France) THURSDAY FRIDAY*

Marco V. García Quintela⁷, A. César González-García

1 Santiago de Compostela University, Santiago de Compostela, Spain, E-mail:
marco.garcia.quintela@usc.es

2 Institute of Heritage Sciences, CSIC, San Roque 2, Santiago de Compostela, Spain, E-mail:
a.cesar.gonzalez-garcia@incipit.csic.es

12.10 SESSION Research History of Astronomy and Current Issues

CHAIRPERSON Wieslaw Macek, McKim Malville

12.10 *Lick Observatory and the Early Development of Astrophysics (invited)*

Malville, J. McKim Department of Astrophysical and Planetary Sciences, University of Colorado, Boulder, Colorado, USA, kimmalville@hotmail.com

12.30 “The Waters I am Entering No One yet Has Crossed”⁸: Alexander Friedman and the Origins of Modern Cosmology (invited)

Ari Belenkiy, Department of Statistics and Actuarial Science, Simon Fraser University, BC, Canada

12.50 *Astronomy and messages from ancient times*

Farhat Amal

Private Researcher, Lebanon/Canada, amalffarhat@hotmail.com

13.10 *Astronomy and the Ultimate Culture: Cosmological Arguments in philosophy, religion and science.*

Peerally Abed

Formerly Pro Vice Chancellor, University of Mauritius, Allee Brillant, Vacoas, Mauritius.

DISCUSSION

13:30 – 15:00 LUNCH

15:00 – 17:00 SESSION Research History of Astronomy and Current Issues

CHAIRPERSON Wieslaw Macek, McKim Malville

⁷ Speaker or corresponding author

⁸ Note of the editor: Ποταμός οὐκ ἔστιν ερβίγαν δις τῷ αὐτῷ, You canot enter in the same river twice, Heraclitus (544 to 484 BCE).

TUESDAY 3 SEPTEMBER 2013**15.00 On the Origin and Evolution of the Universe: Chaos or Cosmos? (invited)****Wieslaw M. Macek 1, 2**

1 Faculty of Mathematics and Natural Sciences, Cardinal Stefan Wyszyński University, Wóycickiego 1/3, 01-938 Warsaw, Poland.

2 Space Research Centre, Polish Academy of Sciences, Bartycka 18 A, 00-716 Warsaw, Poland.

15.20 Space Exploration, Society and Religion (invited)

Panagiotis G. Niarchos, Department of Astrophysics, Astronomy and Mechanics, National and Kapodistrian University of Athens, Athens, Greece

15.50 The PLATO space mission

Elio Antonello INAF - Osservatorio Astronomico di Brera elio.antonello@brera.inaf.it

16.10 The conception of time in the Cosmos and the microcosmos

Emmanuel Manousos, National and Kapodistrian University of Athens, Athens, Greece

16.30 Problems with the presentation of a new Cosmological Model

Emmanuel Manousos, National and Kapodistrian University of Athens, Athens, Greece

16.50 Mathematics and Astrology

Rosa María Herrera APYCE & UPM Madrid, Spain herrera.rm@gmail.com

DISCUSSION**17:15 – 17:30 COFFEE****17.30 SESSION Educational Aspects of Astronomy****CHAIRPERSON Panagiotis G. Niarchos****17.30 Teaching History of Astronomy to the Public: The Basic Course of Astronomy Experience**

Saucedo-Morales, Julio¹ , Loera-González, Pablo²

¹ University of Sonora, Hermosillo, Sonora, México, Email: jsaucedo@cifus.uson.mx

² University of Sonora, Hermosillo, Sonora, México, Email: pabloloerag@gmail.com

17.50 The traditional ethnographic doll as an expression of celestial relationships in Slavic folk cosmology**Ayvika V. Mushich-Gromyko**

TUESDAY 3 SEPTEMBER 2013

*Center of Dialectical Research CAP (Cosmology and Philosophy), Novosibirsk, Russia,
madeinhaven@yandex.ru; alex_boris@mail.ru*

18.10 *On the origin of the alphabet in a cosmological aspect*

Ekaterina E. Barinova ACS Academy, Shanghai, China, E-mail: barinova.e.e@gmail.com

18.30 *The Antikythera Mechanism as an educational device to teach modelling and change of paradigm (10 minutes)*

Moussas, Xenophon; Kriaris, Dionysios; Bampasidis, Georgios; Papaspirou, Panagiotis; Filntisis, Panagiotis; Solomonidou, Anezina; Coustenis, Athena; Bitsakis, Yanis; Anastasiou, Magdalini; Efstatiou, Kyriakos; Kakavas, George; †Bouyia, Polyxeni; Fasoulopoulos, Georgios; Kioleoglou, Isidoros; Edmunds, Mike; Zafeiropoulou, Mary; Roumeliotis, Manos; Malzbender, Tom; Ramsey, Andrew; Spandagos, Evangelos; Giannopoulos, Nikos; Dreni, Stella; Porligi, Amalia; Daniels, Eleni; Wright, Michael T.; Sabry, Reem; El-Mikaty, Hoda; Henriksson, Göran; Munktell, Ing-Marie; Vafea, Flora; Koufos, Stratos; Prassopoulos, Dimitrios; Zafiropoulos, Vasili; Karakonstantis, Andreas; Aggeioplasti, Katerina; Delidou, Eleni; Papoulias, Costas; Papoulias, George; Haley, Paul; Tsefalas, Costas; Mimouni, Jamal; Valls-Gabaud, David; Biggs, Matt; Chochol, Drahomir; Szubiakowski, Jacek; Plucinska, Ela; Jacyno, Anna; Pal'uš, Pavel; Jančušková, Danica; Czart, Krystof; Xenakis, Nikos; Gkini, Magda Evgenia; Perpyraki, Eva; Antoniou, Panagiotis Costas Rapatzikos, Sotiris Raptis, Dimitris Gikas, Photini Villioti, xmoussas@gmail.com xmoussas@phys.uoa.gr

18.40 SESSION European prehistory, folklore and archaeoastronomy

CHAIRPERSON Claus Clausen, Lionel Sims

18.40 *Toads and child sacrifice, moon and sun at Avebury and Stonehenge: using Greek myth to reconstruct the *IE substrate. (invited)*

Lionel Sims, University of East London, UK.

19.00 *Iberian megalithic tombs: A possible link to Scandinavia?*

Claus Clausen Affiliated to the Niels Bohr Institute (NBI), University of Copenhagen, Denmark, clausjoergenclausen@gmail.com

19.20 *The Iron Age Saunas of NW Spain from an archaeoastronomical perspective*

Marco V. García Quintela⁹, A. César González-García, Yolanda Seoane Veiga

1 Santiago de Compostela University, Santiago de Compostela, Spain, E-mail:
marco.garcia.quintela@usc.es

⁹ Speaker

2 & 3 Institute of Heritage Sciences, CSIC, San Roque 2, Santiago de Compostela, Spain, E-mail:
a.cesar.gonzalez-garcia@incipit.csic.es

DISCUSSION

THURSDAY 5 SEPTEMBER 2013

8:30 10:30 VISITS AT THE NATIONAL ARCHAEOLOGICAL MUSEUM, 40 PATISION STREET

11:30 – 12:00 COFFEE

12:00 SESSION Astronomy and Archaeoastronomy in Near East, Asia, Oceania

CHAIRPERSON Steven L. Renshaw, David W. Pankenier, Audrius Beinorius

12.00 *The Star-crossed Romance of the Weaving Maid and Ox-herd as Etiological Myth (invited)*

David W. Pankenier, Lehigh University, Bethlehem, PA 18015 USA, dwp0@lehigh.edu

12. 20 *Astronomical Iconography in Takamatsu Zuka and Kitora Tumuli: Anomalies in the Adaptation of Astronomical and Cosmological Knowledge in Early Japan (invited)*

Steven L. Renshaw, Kanda University of International Studies, Chiba, Japan, E-Mail: stever@gol.com

12.40 *The Epistemological and Cosmological Foundations of Indian Astrology and Divination (invited)*

Prof. Audrius Beinorius, Center of Oriental Studies, Vilnius University, Lithuania, E-mail: audrius.beinorius@oc.vu.lt

13:30 – 15:00 LUNCH

15:00 – 17:00

ΠΡΟΕΔΡΕΙΟ: Γεώργιος Κακαβάς, Ξ. Μουσάς, Σ. Δρένη

CHAIRPERSONS George Kakavas, X. Moussas, S. Dreni

15.00 ΣΥΝΕΔΡΙΑ ΣΤΗΝ ΕΛΛΗΝΙΚΗ ΓΛΩΣΣΑ, SESSION IN GREEK LANGUAGE

15.10 *Ο Μηχανισμός των Αντικυθήρων, ως επιτομή της Ελληνικής φιλοσοφίας*

Ξεν. Διον. Μουσά, Αστεροσκοπείο του Εθνικού και Καποδιστριακού Πανεπιστήμιου Αθηνών, xmoussas@phys.uoa.gr, xmoussas@gmail.com

15.30 *Αστρονομία και αστρομαντεία. Η περίπτωση Φαρμακείδων της Υπάτης (προσκεκλημένη ομιλία)*

Astronomy and Star-divination. The case of the “Medicine women” of Hypate

Δρ Γεώργιος Κακαβάς, Εθνικό Αρχαιολογικό Μουσείο

15.50 *Αστρονομία και Νομισματική (invited)*

Δρ Γεώργιος Κακαβάς, Στέλλα Δρένη, Νομισματικό Μουσείο

THURSDAY 5 SEPTEMBER 2013

16.10 Η απεικόνιση των αστέρων και της σελήνης μέσα από τα νομίσματα των Συλλογών του Νομισματικού Μουσείου**Αλέξανδρος Ανδρέου, Αρχαιολόγος-Νομισματολόγος, Νομισματικό Μουσείο Αθηνών****16.30 Από τους Έλληνες αστρονόμους στον Κέπλερ. Οι Ελληνικές ρίζες της σκέψης του μεγάλου αστρονόμου****Πάνος Παπασπύρου, Εθνικό και Καποδιστριακό Πλανετιστήμιο Αθηνών****16.40 Εκπαιδευτικές δραστηριότητες της Εταιρείας Αστρονομίας και Διαστήματος, Παράρτημα Σαλαμίνας****Κώστας Ραπατζίκος, Σωτήρης Ράπτης, Δημήτρης Γκίκας, Φωτεινή Βιλιώτη, Εταιρείας Αστρονομίας και Διαστήματος, Παράρτημα Σαλαμίνας****ΕΡΩΤΗΣΕΙΣ ΚΑΙ ΣΥΖΗΤΗΣΗ****17:00 – 17:30 COFFEE****17:30 – 19:30 SESSION European Prehistory, Folklore and Archaeoastronomy****CHAIPERSONS A. César González-García, M^a Pilar Burillo-Cuadrado****17.30 *Astronomy, Metrics, and Proportionality in the Iberian necropolis of Tútugi (Galera, Granada, Spain)*****Manuel Pérez Gutiérrez 1 , María Oliva Rodríguez Ariza 2**

1 University of Salamanca. Higher Polytechnical School of Ávila. C/ Hornos caleros, 50.

05003, Ávila, Spain, E-mail: manolope@usal.es2 University of Jaén. University Institute of Iberian Archaeology. Paraje Las Lagunillas s/n, 23008, Jaén, Spain. E-mail: moliva@ujaen.es**17.50 *Who is The Mithraic Leontocephalic Man?*****Reza Assasi, Ph.D Candidate, School of Architecture, McGill University, Montreal, CANADA,**
reza.assasi@mail.mcgill.ca,**18.10 *Swastica as a representation of the sun of Helios and Mithra*****M^a Pilar Burillo-Cuadrado , Francisco Burillo-Mozota,**University of Zaragoza.Campus de Teruel. 44001, Teruel, Spain, mpilar.burillo@gmail.com:
fburillo@unizar.es

THURSDAY 5 SEPTEMBER 2013

18.30 *On the orientation of Roman cities in Hispania: preliminary results (invited)*

A. César González-García¹, Andrea Rodríguez Antón² & Juan Antonio Belmonte³

¹ Institute of Heritage Sciences, CSIC, Santiago de Compostela, Spain, E-mail: a.cesar.gonzalez-garcia@incipit.csic.es

² Instituto de Astrofísica de Canarias, La Laguna, Spain, E-mail: ara@iac.es ³ Instituto de Astrofísica de Canarias, La Laguna, Spain, E-mail: jba@iac.es

DISCUSSION

18.40 SESSION Astronomy in Europe and the Mediterranean at Historical Times

CAIRPERSONS G. Kakavas, X. Moussas,

18.40 *Astronomy and Numismatics (invited)*

Dr Kakavas George, Dreni Stella

Numismatic Museum, Athens, Greece

19.00 *Celestial deities in the National Archaeological Museum (invited)*

Dr Evangelos Vivliodetis, Dr George Kavvadias *National Archaeological Museum, Athens, Greece*

DISCUSSION

FRIDAY 6 SEPTEMBER 2013

8:30 – 10:00 VISIT AT THE NUMISMATIC MUSEUM, PANEPISTIMIOU STREET

10:00 – 10:30 COFFEE

10:30 SESSION Astronomy and Archaeoastronomy in Near East, Asia, Oceania

CHAIRPERSON Juan Antonio Belmonte, Ioannis Liritzis

10.50 *Temple orientation trends in Bronze Age Southern Levant*

Gerasimos Artelaris¹ and Ioannis Liritzis²

1 University of the Aegean, Lab of Archaeometry, Dept of Mediterranean Studies, 1 Demokratias Str, Rhodes 85100, Greece

artelaris@rhodes.aegean.gr liritzis@rhodes.aegean.gr

11.10 *On the orientation of Early Bronze Age tombs in ancient Magan (invited)*

Belmonte, Juan Antonio¹ and González García, A. César²

1 Instituto de Astrofísica de Canarias, La Laguna, Spain <jba@iac.es>

2 Instituto de ciencias del Patrimonio INCIPIT, CSIC, Santiago de Compostela, Spain cesar.gonzalez-garcia@incipit.csic.es

11.30 *Cosmologies in place: archaeoastronomy and folklore of Bronze Age mounds in the Mongolian Altai*

Dal Zovo, Cecilia , González García, A. César

1 Institute of Heritage Sciences, Spanish National Research Council (Incipit-CSIC), San Roque 2 Santiago de Compostela (Spain), cecilia.dalzovo@incipit.csic.es; ceciliadalzovo@gmail.com

2 Institute of Heritage Sciences, Spanish National Research Council (Incipit-CSIC), San Roque 2 Santiago de Compostela (Spain), a.cesar.gonzalez-garcia@incipit.csic.es

11.50 *Is a degenerated Ashtoreth plaque a lunisolar calendar? (10 minutes)*

Alexios Pliakos, Pliakos Foreign Language School, Argyroupoli, GR16451, Athens, Greece

12.00 *Ancient constellations of the Central Asia: to astronomical interpretation of some subjects of petroglyphs*

Nyssanbay Mankeulu Bekbassar, Alma Ata, Kazakhstan

DISCUSSION

13. 00 *Portraits of ancient philosophers by Evi Sarantea (10 minutes), Evi Sarantea, painter (5 minutes)*

13.15 1st Music film Alexandros Hahalis (5 minutes), 2ND Music film Alexandros Hahalis (5 minutes)

13:00 – 15:00 LUNCH	
15:00 – 17:00	SEAC GENERAL ASSEMBLY
17:00 – 17:30 COFFEE	
17:30 – 19:30 SPECIAL SESSION TO THE MEMORY OF ARCHAEOLOGIST POLYXENI BOUYIA	
Astronomy and Philosophy: the Antikythera Mechanism and its role in Astronomy	
CHAIRPERSON G. Kakavas, Elio Antonello, Michael A. Rappenglück, X. Moussas	
17.30 <i>The Antikythera Shipwreck, The Ship, the treasures, the Mechanism</i>	
Anastasia Gadolou, Nomiki Palaiokrassa, Elena Vlachogianni	
<i>Archaeologists of the National Archaeological Museum of Greece</i>	
17.50 <i>The astronomical inscriptions of the Antikythera Mechanism: the research and the online educational program</i>	
Yanis Bitsakis and Kostas Skordoulis, Department of Primary Education, National and Kapodistrian University of Athens	
18.10 <i>Thales of Miletus, Archimedes and the solar eclipses on the Antikythera Mechanism (invited)</i>	
Göran Henriksson, Uppsala University, Uppsala, Sweden, E-mail: goran.henriksson@astro.uu.se	
18.20 <i>The Oldest Computer, or how to construct a mechanical Cosmos, the so called Antikythera Mechanism: Epitome of Greek Philosophy (10 minutes)</i>	
Xenophon Moussas, Astronomical Observatory of the National and Kapodistrian University of Athens, Greece. xmoussas@phys.uoa.gr, xmoussas@gmail.com	
18.40 <i>The Antikythera Mechanism: the signature of Archimedes on the eclipses, operation of the instrument, planetary pointers and Kepler before Kepler? (10 minutes)</i>	
Xenophon Moussas, The Observatory of the National and Kapodistrian, University of Athens, xmoussas@phys.uoa.gr, xmoussas@gmail.com	
18.50 <i>The Antikythera Mechanism: Parapegmata, Pointers and Spirals</i>	
J.H. Seiradakis, Aristotle University, Department of Physics, Section of Astrophysics, Astronomy and Mechanics, GR-54124 Thessaloniki, Greece	
DISCUSSION	
19.45 CONCLUSIONS OF THE CONFERENCE, CONCLUDING REMARKS, CLOSING by Dr. Michael A. Rappenglück, President of SEAC	

Works of Art and Exhibitions presented during XXI SEAC 2013

During the XXIth SEAC conference we will present an exhibition of ancient astronomer portraits by the painter Evi Sarantea based on her Ancient Philosophers reconstruction. *Portraits of Greek Philosophers* (invited exhibition), by painter Evi Sarantea, Halkis, Greece

During the XXIth SEAC conference we will present two short videos around 4 minutes each, with music related to the stars and the Cosmos by composer, Alexandros Hahalis, Athens, Greece

PYR AEIZOON, FIRE EVERLIVING (invited performance, 5 minute film)

Projection of 2 compositions from the performance PYR AEIZOON (Pur A-ii-zo-on), FIRE EVERLIVING, at the Eugenideion Planetarium, dedicated to the Spring Equinox of 2010, by the composer Alexandros Hahalis created with soprano Maria Kanellopoulou.

The *Perperouna* ensemble will present Monday evening Greek music and dances at the Numismatic Museum (H. Schlieman mansion, 12 Panepistimiou – officially 12 Venizelou - street)



IN SITU EDUCATIONAL ACTIVITIES

From TITANIA HOTEL 9AM to ELEFSIS SATURDAY 31 ST AUGUST	From TITANIA HOTEL 9AM to ERETIA SUNDAY 1 ST SEPTEMBER	From TITANIA HOTEL 7.30 AM to NEMEA MYCENAE NAFPLION WEDNESDAY 4 TH SEPTEMBER	From TITANIA HOTEL 8.00 AM to DELPHI AMPHISA SATURDAY 7 TH SEPTEMBER	From TITANIA HOTEL 7.30 AM to HYPATE SUNDAY 8 TH SEPTEMBER
--	--	--	---	--

Departure from Hotel Titania, 52 Panepistimiou street (officially Venizelou street)

Saturday 31 August, Excursion To [Elefsis](#) (or [Eleusis](#), or [Elefsina](#), where the Eleusinian mysteries), [Megara](#) (city of Euclid), Alepochori and possibly [Perachora](#) and the [Heraion of Perachora](#),

Sunday 1st September, Excursion To [Eretria](#) (the Latin Alphabet comes from Eretria), the Museum and the [archaeological site](#), on the Island of Evia (Euboea),

Sunday 1st September, Back to Athens the Welcome Drink and registration from 20:00 to 22:00, at the Numismatic Museum. H. Schliemann's House, at Panepistimiou street number 12 (Venizelou street 12), which is the same street as the University. The site is www.nma.gr , at a walking distance to most hotels and the University (which is at 30 Panepistimiou street).

Wednesday 4th September, Educational and cultural Excursion at [Nemea](#), [Mycenae](#), [Argos](#), [Nafplion](#), visit at the [Center for Hellenic Studies in Greece of the Harvard University](#)

Thursday 5th September, 8.30 am Educational visit at the National Archaeological Museum

Thursday 5th September, Dinner at the Atrium of the National Archaeological Museum, and Music: ***The Music of the Spheres***, Especially composed for us by Christos Papadopoulos. The National Archaeological Museum is at 44, Patission Street, GR-106 82 ATHENS

Friday 6th September 9am Educational visit at the Numismatic Museum.

Friday 6th September, Two or three hour walk Visit of ancient astronomical sites in Athens. Aerides Andronikos solar and mechanical clock 1st century BCE, Meton's observatory at Pnyx (5th Century BCE).

PLEASE USE SHOES SUITABLE FOR WALKING. WE HAVE TO GO UP AND DOWN AND .

Saturday 7th September, Excursion to [Delphi](#) and [Amphissa](#)

Sunday 8th September, Excursion to [Hypate](#), or Ypati, the [Museum](#), the [Asteroschooleion](#), folk dances (by The Ainianes).

The University of Athens (where the sessions take place) is at 30 Panepistimiou (Venizelou) street, Panepistimio Metro station (PANEPISTIMIO means university), Academia bus station. Most hotels are at walking distance. <http://en.uoa.gr/>

National Archaeological Museum, 44, Patission Street, GR-106 82 ATHENS,

Numismatic Museum, 12, El. Venizelou (Panepistimiou) Street, GR-106 71 ATHENS

Scientific Organizing Committee

Juan Belmonte Aviles (Spain)
Mary Blomberg (Sweden)
Peter Blomberg (Sweden)
Polyxeni Bouyia (Greece)
Nick Campion (UK)
A. César González-García (Spain)
Stella Dreni (Greece)
Anastasia Gadolou (Greece)
Goran Henriksson (Sweden)
Jarita Holbrook (USA)
Stanislaw Iwaniszewski (Poland)
George Kakavas (Greece)
George Kavvadias (Greece)
Demeter-Eleni Ladogianni (Greece)
Ioannis Liritzis (Greece)
Giulio Magli (Italy)
Kim Malville (USA)
Xenophon Moussas (Greece)
Yorka Nikolaou (Greece)
Nomiki Palaiokrassa (Greece)
David Pankenier (USA)
Maro Papathanasiou (Greece)
Emilia Pasztor (Hungary)
Fernando Pimenta (Portugal)
Francesco Polcaro (Italy)
Frank Prendergast (Ireland)
Michael Rappenglück (Germany)
Steven Renshaw (Japan)
Clive Ruggles (UK)
Mosalam Shaltout (Egypt)
Lionel Sims (UK)
Ivan Šprajc (Slovenia)
Stratos Theodosiou (Greece)
Panagiota Preka Papadema (Greece)
Flora Vafea (Egypt, Greece)
Frank Ventura (Malta)
Evangelos Vivliodetis (Greece)

Local Organizing Committee

Xenophon Moussas
George Kakavas
Eleftheria Mitsakou
Stella Dreni
Myrianthe Moussa
Panagiotis Papaspyrou
Dionysis Moussas
Panagiota Preka Papadema
Flora Vafea
Dimitris Gikas
Eleni Naki
Ariadne Klonizaki
Stavros Dimitrakoudis
Ioannis Liritzis
Maro Papathanasiou
Theofanis Gkountras
Maria Laina
Nikos Sougles
Kalliopi Spyrou
Pantelis Feleris