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"Astronomy and culture": A new commission of the Spanish Astronomical Society

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Abstract

The observation and interpretation of the universe in general have played a major role in cultures from different times and epochs. Studying this role is the main goal of a discipline called "cultural astronomy" or "astronomy in culture". With a tradition of more than three decades, it is an interdiscipline halfway between astronomy and social sciences. Cultural astronomy is at the core of the new commission of the Spanish Astronomical Society "Astronomy and Culture", that we introduce here.

1 Introduction

The observation and interpretation of the cosmos and the registration of astronomical phenomena have permeated cultures across the world for millennia. The reasons that drove our ancestors to look at the night sky were often practical and the way they interpreted what they saw was far from what we consider scientific nowadays. And yet, our knowledge of the universe is heiress of those visions.

Our economic (fishing, agriculture, navigation), religious (rituals, prayers, festivities), political (popes, kings, emperors that decided according to celestial prophecies read by their astrologers)... in general, our lives followed the cosmos and its rhythms. The cycles in heaven, most evident for the Moon, the Sun and the constellations, were the basis of the first attempts to measure time and the definition of the first calendars. They also helped to guide ourselves spatially.

The obvious influence of the Sun and the Moon on Earth (day and night, lunation, seasons, tides...), led us to believe that the celestial phenomena influenced everything that happened and existed on our planet: human beings, plants, animals ... even stones. The basis of astrology, which was (still is) present in many, if not all cultures in one way or another, roots on this idea. Comets (also eclipses) were believed to announce terrible misfortunes. The terror they inspired motivated their registration, description and classification.

We have invented cosmogonies to explain how everything that exists appeared and how it became what it is today. An infinite variety of divinities and other mythical creatures are protagonists of complex and fascinating narratives about how the universe formed and evolved into its current state. In the context of those beliefs these cosmogonies gave answers to vital questions such as: where did everything come from? why do human beings exist? when was the universe created? or is it maybe eternal? Those cosmogonies also provided a context to organise our social, religious and political lives. Our visions of the universe have been at the core of the identity of each human group.

Over the centuries, rational thinking and scientific study have gained ground to lead the search for answers to all those fundamental questions. With time passing, myths were replaced by reason. Faith was not enough. The mysteries of nature and the universe had to be answered on the basis of observation, experimentation, hypothesis, predictions, tests. The elements of the universe (and of nature in general) lost their human and/or animal attributes, and become physical objects or systems that obeyed some laws that could be understood and explained. As an example, Earth was not considered anymore a fertile, protective female goddess with human attributes, but a physical element, a sphere of a given size and composition. During this evolution, in which ideas would not be taken for granted as easily as before, critical thinking had the opportunity to bloom and grow strong. This change was certainly not instantaneous, and faith and superstition entangled with rational thinking in complex ways. This is still true today, even in this time when science leads the pursue of the most accurate explanations of the universe, designs and follows the path that takes us closer to the true answers.

Therefore, our interpretation of the cosmos has been shaped by religious and mythical beliefs, political, economic and social interests, philosophy and science. Astronomy is heritage

of that crucible of different ways of thinking that has evolved over time. The complex intricacies of the generation, disappearance, transmission and transformation of the multiple perceptions of the universe have led to the current situation, in which the technological development is extraordinary and thousands and thousands of women and men work to unravel its mysteries in the framework of scientific research.

2 Astronomy and culture: a new commission of the Spanish Astronomical Society

The observation and interpretation of the universe in general, and astronomy in particular, have played a major role in cultures from different times and epochs for the reasons stated briefly above. Studying this role is the main goal of "cultural astronomy" or "Astronomy in Culture", an interdiscipline halfway between astronomy and social sciences, with more than three decades of tradition [1]. In June 2023 the authors of this paper created a new commission of the Spanish Astronomical Society named"Astronomy and Culture" (https://www.sea-astronomia.es/comision-astronomia-y-cultura) and with Cultural Astronomy at the core of our interests. In a very broad sense, these focus on the role that the observation, interpretation and study of the cosmos have played in culture in societies of different times and places, paying special attention to the current era.

Figure 1: Logo of the "Astronomy and Culture" commission (© Fran Rodríguez)

Other professional societies and working groups of similar nature to our commission are:
- International Astronomical Union (IAU) C5 Commission "Cultural Astronomy"
- IAU C4 commission, "World Heritage and Astronomy"
- IAU C3 commission, "History of Astronomy"

- IUHPST (International Union of History and Philosophy of Science and Technology)
- SIAC (Sociedad Interamericana de Astronomía en la Cultura)
- ISAAC (International Society for Archaeoastronomy and Astronomy in Culture)
- SEAC (European Society for Astronomy in Culture)
- INSAP (Inspiration of Astronomical Phenomena)

The steering committee of our commission is a multi and inter-disciplinary team of researchers and science communicators, that cover a broad range of expertise in astrophysics, archaeoastronomy, history of astronomy/astrology and history of art. In addition to our research activities, all members have long experience in teaching and/or outreach in topics related to science, art and humanities.

Our main goals are:

• To give visibility and to promote research and outreach initiatives that create and strengthen synergies between astronomy and other areas of knowledge

• To encourage the appreciation of the history of astronomy and of astrology in order to provide a historical perspective for the current astronomical projects of scientific research and technological development

• To transmit the value of the observation of the universe in all epochs as a masterful generator of metaphysical reflection up to the present day

• To collaborate with museums and other cultural organizations in projects that promote the appreciation of their collections from the perspective of scientific observation

• To bring science (astronomy) and scientists closer to society from unusual environments (e.g. art museums)

• To facilitate the interaction between SEA and non-SEA members who are interested in cultural astronomy

• To promote contact with commissions, associations, national and international working groups that share the goals of this commission

• To organise meetings (conferences, workshops, others) dedicated to cultural astronomy

• To increase the representation within SEA via new memberships of specialists from areas within arts, humanities and other science branches, who are active in cultural astronomy

In general, this commission aims at diluting the traditional separation between science, arts and humanities. We will pursue this goal by promoting the encounter between areas of knowledge generally perceived as dissociated. Such hybridization can make culture more accessible, attractive and inclusive.

3 Astronomy and Culture in the XVI SEA Scientific Conference

The Spanish Astronomical Society celebrates biennial science/technology conferences that bring together numerous representatives of the Spanish astronomical community that are

working both in and outside Spain, and including Spanish and non-Spanish professionals. The most recent SEA conference was celebrated in Granada from 15th to 19th July 2024, in an effort led by SEA and the Instituto de Astrofísica de Andalucía (IAA-CSIC). In this context, our commission celebrated a symposium on July 16th and 17th on Cultural Astronomy for the first time in a SEA conference.

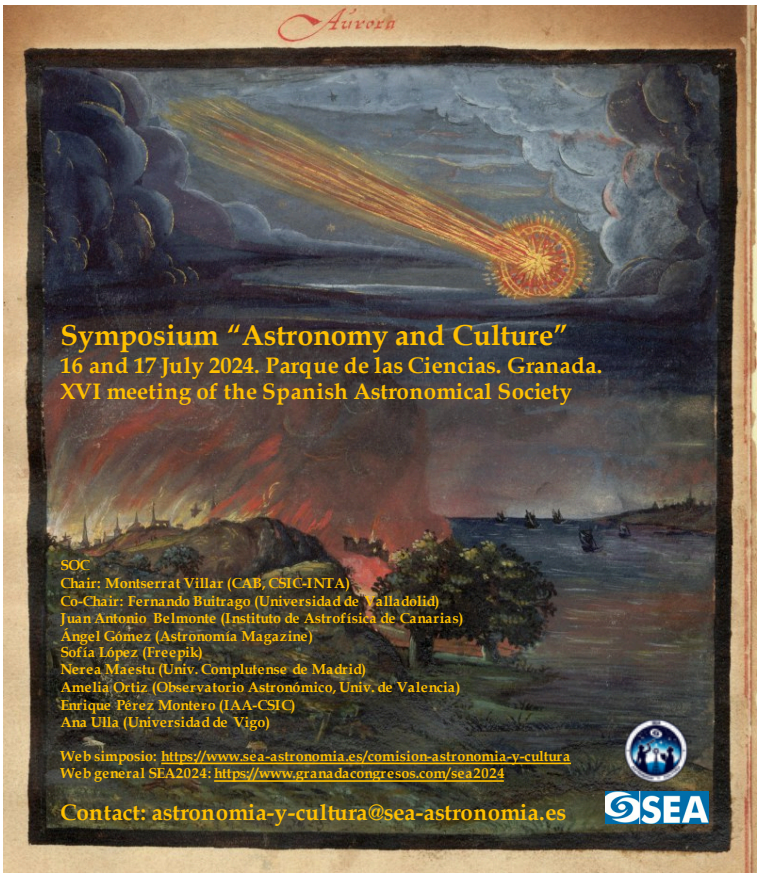

Figure 2: Poster of the symposium "Astronomy and Culture" organized during the XVI Scientific Meeting of the Spanish Astronomical Society

The main purpose was to stimulate an in-depth reflection and discussion on the influence of astronomy in all human societies since prehistory till present, and taking into account their cultural context. This transdisciplinary goal was approached from multiple perspectives by addressing a diversity of topics framed within areas such as history of astronomy, history of art, archaeoastronomy, art and science visualization. From megalithic architecture, landscapes and skylines of the Nabataean, celestial globes, constellation maps, navigation and orientation, historic sundials, comets in medieval manuscripts ... to the new generation of images using artificial intelligence. From Arabia to China and to Western Europe (incl. Mainland Spain and Canary Islands). From prehistory to the present epoch. The variety of presentations dedicated to research and outreach projects showed the deep influence of

astronomy in culture since ancient times. The attendants, including the organizers, enjoyed a fascinating and diverse program of talks in a vibrant atmosphere and a room full of people that contributed with inspiring ideas.

This symposium has shown that Cultural Astronomy attracts great interest within the SEA community. It has encouraged us to take on the challenge and opportunity to organize new encounters in each SEA congress. Thus, we hope that the next will be celebrated in 2026, during the XVII SEA Science Meeting in Barcelona.

Until then, people interested can find information about other initiatives related to Astronomy and Culture in https://www.sea-astronomia.es/comision-astronomia-y-cultura and @AstroCulturaSEA.

4 Summary

In conclusion, the main goal of our commission is to create a favorable environment for interdisciplinary studies of Cultural Astronomy in Spain, and to favour the interaction of people researching in different fields of this truly transdisciplinary subject. The commission is already made up of people from diverse backgrounds, not all of us being astronomers. Our hope is that those fora, whether courses, lectures, meetings or conferences that we might organize, promote or sponsor in the future, will cover this panoply of perspectives on skyscapes. This will be supported on the experience of researchers that can deal with epistemologies from the most diverse fields, such as art, anthropology, indeed astronomy, history or architecture, among many others and that may support the ideas that gave rise to the birth of SEA's Commission of Astronomy and Culture. The progress of science is our final objective.

References

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