

IAU Division C – Education, Outreach and Heritage

Report 2021 – Commission C4 Working Group:
WINDOWS TO THE UNIVERSE –
CLASSICAL AND MODERN OBSERVATORIES

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1 Forming the WG Windows to the Universe

Starting in 2019, this WG has been established as a combination of two former WGs: “*Classical Observatories from the Renaissance to the 20th Century*” and the Inter-Commission B7-C4 WG “*Windows to the Universe: High-Mountain Observatories, and other astronomical sites of the late 20th and early 21st centuries*”.

These former WGs were established in close cooperation with C4 to support the development and coordination of nominations of classical and modern astronomical observatory sites from the Renaissance to the 21st century for inscription on the UNESCO World Heritage List (WHL).

2 Activities in 2021 – Observatories and World Heritage sites

The aim of the WG is to advance the WHL nomination project “*Route of astronomical observatories*”, which focuses on the possible serial (multi-site) transnational nomination of a number of classical observatories all over the world, combining observatories in different continents, connected by architectural and landscape features, by comparable scientific instrumentation or by scientific cooperations.

In 2019, UNESCO declared the Observatory of Jodrell Bank, United Kingdom, as World Heritage site.

After a conference in Kazan, Tatarstan, Russia, in December 2019, the two observatories of Kazan university were placed on the national tentative list of the Russian Federation (<https://whc.unesco.org/en/tentativelists/6494/>) in Dec. 2020.

After this success, due to the pandemic situation worldwide, there had been only few activities in 2020/2021. Most conferences were shifted to later dates or like *Astronomical observatories of Kazan University in culture and science of the World* took place as Zoom Meeting in April 2021.

In addition, there were several online events between members of C4 and the WGs, e. g. a Zoom meeting of G. Wolfschmidt with Premana W. Premadi (Lembang, Indonesia), March 2021 (discussion about a 3D Digital Heritage Project by Perry Lange), and another one with Lydia Cidale (La Plata, Argentina), April 2021, and with Michael Burton, Armagh, May 2021 (discussing a possible serial transnational Unesco application for Irish Observatories).

During the year 2021, we were actively preparing the intended nomination of Hamburg Observatory for the national tentative list of Germany, which was finally submitted on October 30, 2021 as “Cultural Heritage Hamburg Observatory in Bergedorf”. See here for more details: <https://www.fhsev.de/Unesco.php> and the application document https://www.fhsev.de/pdf/Bewerbungsdokument-KMK_Hamburger-Sternwarte-2021.pdf. Now we have to wait until 2023 for the evaluation.

3 Irish Observatories (Dublin, Armagh, and Lord Rosse’s Telescope in Birr Castle) around 1800

The three Irish Observatories – Dunsink Observatory in Dublin, Ireland (<https://www3.astronomicalheritage.net/index.php/show-entity?identity=194&idsubentity=1>), Armagh Observatory, Northern Ireland, UK (<https://www3.astronomicalheritage.net/index.php/show-entity?identity=161&idsubentity=1>), and Lord Rosse’s Leviathan of Parsonstown in Birr Castle, Ireland – the world’s largest telescope for 72 years (<https://www3.astronomicalheritage.net/index.php/show-entity?identity=198&idsubentity=1>) – were presented in the IAU List *Outstanding Astronomical Heritage*.

A Study Tour, March 20–24, 2022, was planned by Michael Burton, director of Armagh, in order to visit the Irish observatories, to discuss the topic with key persons like IAU C4 members, relevant stakeholders and national Unesco people, and to evaluate the possibilities of a serial transnational Unesco application. The first step is to get the observatories on the national tentative lists of UK and Ireland. A possible OUV could be: Irish Observatories around 1800 – breakthrough in observatory architecture (first

domes and central column) and innovative instrumentation and telescope mounting – key contribution to the enigma of the spiral nebulae leading to the concept of galaxies, and changing / expanding humanity’s perception about its place in the cosmos (criteria #4, #2, and #6).

4 List of Ukrainian observatories with relevant astronomical value for humanity that are currently at risk due to the war in Ukraine

In the IAU List *Outstanding Astronomical Heritage*, I have researched and compiled the following information (history, architecture, instruments, cultural heritage and astronomical relevance) for 7 sites (including branch observatories outside of the city center) in Ukraine. Mykolaiv, Kyiv, Odessa and Simeiz are on the Unesco Ukraine tentative list (2008), criteria (ii), (iv) and (vi), cultural heritage. But I cannot say anything about the status, the threats, if the observatories are astronomical heritage in danger or destroyed or if they are still in good condition; I think, Kharkiv and Mykolaiv are most endangered. These are the first sites in Europe, which are currently at risk.

This direct link is for Lwiw, for the other Ukrainian observatories, you have to exchange the number 169 by the given number: <https://www3.astronomicalheritage.net/index.php/show-entity?identity=169&idsubentity=1>

169 – Lwiw (Lemberg) Observatory (1771 and 1912)

171 – Kharkiv Observatory (1808)

172 – Mykolaiv (Nikolaev) Observatory (1821)

170 – Kyiv Observatory (1845)

173 – Odessa Observatory (1871)

174 – Simeiz near Yalta, Crimea (1908)

174 – Crimean Astrophysical Observatory in Nauchny, Crimea (1945).

5 Aims and Planned Future Activities

It is very important to preserve the heritage and culture related to astronomy. We want to promote the importance and links of astronomy with World Heritage. The main goal of this WG is, to give advice to stakeholders in order to push observatories for the recognition for the *UNESCO World Heritage List* or for the IAU List *Outstanding Astronomical Heritage* (OAH).

In addition to the web portal with case studies for UNESCO’s World Heritage & Astronomy Initiative (<https://www3.astronomicalheritage.net/index.php>), the IAU *Outstanding Astronomical Heritage* (OAH) was created and has now about 100 observatories (not all are finished for publishing):

<https://www3.astronomicalheritage.net/index.php/>

heritage/outstanding-astronomical-heritage. This IAU list presents observatories which are outstanding in science and in the history of astronomy, but do not necessarily demonstrate potential *Outstanding Universal Value* which would be needed for inscription on the *World Heritage List*. For example, the period from the Renaissance to the middle of the 20th century was an extremely rich one for the history of astronomy, with many observatories from this period playing a significant role because of the cutting-edge scientific research carried out there. However, because the actual building may be damaged or destroyed, and the original instruments may no longer exist in situ or at all, they have no chance for the UNESCO list. The IAU OAH list – until now as activity of C4, should be an activity of the new WG – will be considerably enlarged with new entries in the next triennium, more recent observatories should be added.

We also have to widen our view, because Unesco has created the Initiative on *Heritage of Astronomy, Science and Technology* (HAST) (<https://whc.unesco.org/en/astronomy-science-technology>) in the 42nd session of the World Heritage Committee (Manama, 2018). We have to think, which sites can be proposed in the next triennium, for example science parks or science campus, e. g. Wissenschaftspark Albert Einstein on Telegrafenberg Potsdam with astronomy, solar physics, and Helmholtz Centre Potsdam GFZ German Research Centre for Geosciences or Baroque Jesuit or Benedictine observatories with astronomy, time keeping, meteorology, geomagnetism, seismology, and natural science (like Havana, Cuba, or Mathematical Tower, Kremsmünster, Austria). Also important places, where famous astronomers were active like Copernicus, Kepler, and Newton, as well as early important public observatories, planetariums, and museums for astronomy, science, and technology – like the Deutsches Museum in Munich with the first Zeiss planetarium in the world and two domes with a public observatory – should be included in the *Portal to the Heritage of Astronomy* in the next triennium.

Conferences:

A meeting *Astronomy in Culture – Cultures of Astronomy*, during the conference of the Astronomical Society, 13.–17. September 2021 was organized by Gudrun Wolfschmidt & Susanne M. Hoffmann (<https://www.fhsev.de/Wolfschmidt/events/splinter-akag-2021.php>). The proceedings will be published in 2022.

The Oxford XII and SIAC VIII Conference *Astronomies, Cultures and Societies* (<http://dawson.fcaglp.unlp.edu.ar/>) in La Plata, Argentina, is shifted to Nov. 2022.

For the future, it is intended to support observatories in sensitizing the public for the heritage issue by means of talks, meetings, exhibitions and other activities (this could also be done in cooperation with C1 “*Astronomy Education and Development*”) in order to achieve greater visibility within the community of professional and amateur astronomers and the public. In this connection, also the preservation of a dark and quiet sky above the more modern observatories should be addressed.

6 Publications

- Wolfschmidt, Gudrun: Cultural Heritage and Architecture of Baroque Observatories. In: From Alexandria to Al-Iskandariya – Astronomy and Culture in the Ancient Mediterranean and Beyond. European Society for Astronomy in Culture – Société Européenne pour l’astronomie dans la culture (SEAC), Proceedings of the 17th Annual SEAC Meeting 2009 in Alexandria, Egypt. Ed. by Michael Rappenglück & Mosalam Shaltout. Gilching, Germany (SEAC Publication) 2021, p. 147–154.
- Wolfschmidt, Gudrun: Chapter 4. The Built Environment – Observatories in the Renaissance. In: Steele, John; McCluskey, Stephen & Efrosyni Boutsikas (ed.): *Vol. 3: A Cultural History of the Universe in the Age of Renaissance*. Edited by Lindsey Starkey. London, Oxford: Bloomsbury Academic 2022.
- Hamburger Sternwarte in Bergedorf. Bewerbung der Freien und Hansestadt Hamburg auf die Fortschreibung der deutschen Anmelde- (Tentativ-)Liste zur Nominierung von Kulturerbegütern für die UNESCO-Liste des Kultur- und Naturerbes der Welt. Ed. by Bernd Paulowitz, Matthias Hünsch, Alexandra Kruse, Perry Lange, Uta K. Mense, Agnes Seemann & Gudrun Wolfschmidt. Free and Hanseatic City of Hamburg: Hamburg Authority for Culture and Media (BKM), Monument Protection Office, World Heritage Coordination (30. Oktober 2021).
- Wolfschmidt, Gudrun: Cultural Heritage of Observatories in the Context with the IAU-UNESCO Initiative – Highlights in the Development of Architecture. In: *Advancing Cultural Astronomy: Studies in Honour of Clive Ruggles*. Ed. by Efrosyni Boutsikas, Steve McCluskey & John Steele. New York, Berlin, Heidelberg: Springer 2021, p. 291–314.
- Wolfschmidt, Gudrun: 150 Years of O’Gyalla / Hurbanovo Observatory. Hvezdáreň v Hurbanove má 150 rokov. V priazni bohyně Niké (4). In: *Kozmos* 6 (2021), p. 35–48, here p. 47.
- Wolfschmidt, Gudrun: Heritage of Astronomical Observatories in the Context of the Thematic Initiative on Heritage of “Astronomy, Science and Technology”. In: Proceedings of the Conference in Kazan (Dez. 2019) *Historical, Cultural and Scientific Heritage of Astronomical Observatories: Formation of the Outstanding Universal Value of Sites*. Heritage and Modern Times (Nasledie i sovremennost), Vol. 3, No 3 (2020), p. 17–29.

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