

Table of Contents

| | |
|--|-------|
| Preface | xiv |
| Organizing committee | xvii |
| Conference participants | xviii |
| Welcome Address by the Director General for Natural Sciences at UNESCO | 1 |
| The role of astronomy in society and culture..... <i>D. Valls-Gabaud & A. Boksenberg</i> | 4 |
| I. Setting the context | |
| Astronomical exploration and the public imagination | 9 |
| <i>B.S. Blumberg</i> | |
| Perspectives on our cosmic habitat..... <i>M.J. Rees</i> | 16 |
| The growth of astrophysical understanding | 22 |
| <i>M. Harwit</i> | |
| The Big Bang, modern cosmology and the fate of the Universe: impacts upon culture..... <i>L.M. Krauss</i> | 33 |
| II. Astronomy in the cultures, and the culture of astronomy | |
| The astronomy of Aboriginal Australia | 39 |
| <i>R.P. Norris & D.W. Hamacher</i> | |
| The African Cultural Astronomy project..... <i>J.O. Urama & J.C. Holbrook</i> | 48 |
| Scriptures, science and mythology: Astronomy in Indian cultures..... <i>R. Kochhar</i> | 54 |
| The relation of Babylonian astronomy to its culture and society..... <i>H. Hunger</i> | 62 |
| In search of cosmic order: Astronomy and culture in Ancient Egypt | 74 |
| <i>J.A. Belmonte</i> | |
| Astronomy and its role in ancient Mesoamerica | 87 |
| <i>I. Šprajc</i> | |
| Some notes on the Inka constellations | 96 |
| <i>E. Pacheco, S. Flores & E. Salazar</i> | |

| | |
|---|-----|
| Connecting Heaven and Man: The role of astronomy in ancient Chinese society and culture | 98 |
| <i>X. Sun</i> | |
| Ancient Chinese constellations | 107 |
| <i>J. Xu</i> | |
| Orientations of dolmens in Western Europe | 116 |
| <i>M. Hoskin</i> | |
| The significance of the Sun, Moon and celestial bodies to societies in the Carpathian basin during the Bronze Age | 127 |
| <i>E. Pásztor</i> | |
| The Antikythera Mechanism: The oldest mechanical universe in its scientific milieu | 135 |
| <i>X. Moussas</i> | |
| Islamic reception of Greek astronomy | 149 |
| <i>G. Saliba</i> | |
| Folk astronomy in Omani agriculture | 166 |
| <i>H. Nash & D.A. Agius</i> | |
| Kepler, Galileo and the birth of modern astronomy | 172 |
| <i>O. Gingerich</i> | |
| Early dynamical world models: A historical review | 182 |
| <i>H. Kragh</i> | |
| Cosmology between two wars. Einstein's revolution and alternative models of the Universe | 189 |
| <i>A. Curir</i> | |
| Adjusting Astronomical Practices : The "Carte du Ciel", the democratic rules and the circulation of opinions at the end of the 19th century | 195 |
| <i>J. Lamy</i> | |
| The creation of the International Astronomical Union as a result of scientific diplomacy | 202 |
| <i>A. Saint-Martin</i> | |
| Sky observation and mythology: Paths to an astronomical culture | 207 |
| <i>V.A. Alencar</i> | |
| The question "Are we alone?" in different cultures | 213 |
| <i>J. Schneider</i> | |
| The naming of minor planets: multicultural relationships | 218 |
| <i>J.-C. Merlin</i> | |
| From Ancient to Modern: The role of astronomy as a cultural experience | 225 |
| <i>M. Austin</i> | |
| Cultural heritage of astronomical observatories | 229 |
| <i>G. Wolfschmidt</i> | |
| Bosscha Observatory: Challenges as a scientific heritage of astronomy in Indonesia | 235 |
| <i>P. Epifania & E. S. Mumpuni</i> | |

III. Astronomy and the arts

| | |
|--|-----|
| Astronomie, “arts” et artistes | 241 |
| <i>S. Débarbat</i> | |
| Science, art and geometrical imagination | 248 |
| <i>J.-P. Luminet</i> | |
| From Giza to the Pantheon: astronomy as a key to the architectural projects of the ancient past | 274 |
| <i>G. Magli</i> | |
| Imagine a universe: An artist’s take on astronomy | 282 |
| <i>M. Abbozzo</i> | |
| Art and astronomy: my personal experience | 286 |
| <i>Guellen</i> | |
| A Universe on which to dwell | 291 |
| <i>M. Atkinson</i> | |
| The sky entities as represented in African literature | 294 |
| <i>E.N. Urama</i> | |
| Hebrew names of the planets | 301 |
| <i>S. Zucker</i> | |
| Hobbits, Hogwarts, and the Heavens: The use of fantasy literature and film in astronomy outreach and education | 306 |
| <i>K. Larsen</i> | |
| Desire of stars - poems | 311 |
| <i>D. Benest</i> | |
| The cosmology of Edgar Allan Poe | 315 |
| <i>A. Cappi</i> | |
| Astronomy and astronomers in Jules Verne’s novels | 321 |
| <i>J. Crovisier</i> | |
| On the telescopes in the paintings of Jan Brueghel the Elder | 327 |
| <i>P. Molaro & P. Selvelli</i> | |
| Michelangelo, Copernicus and the Sistine chapel | 333 |
| <i>V. Shrimplin</i> | |
| The worldwide impact of Donati’s comet on art and society in the mid-19th century | 340 |
| <i>A. Gasperini, D. Galli & L. Nenzi</i> | |
| A palace for astronomy in Buenos Aires | 346 |
| <i>A. Gangui</i> | |
| TWAN: The World at Night | 354 |
| <i>B.A. Tafreshi</i> | |
| The harmony of the spheres from Pythagoras to Voyager | 358 |
| <i>D. Proust</i> | |

| | |
|---|-----|
| Astronomy in Brazilian music, literature and poetry | 368 |
| <i>R.R. de Freitas Mourão</i> | |
| IV. The social impact of astronomy | |
| Is astronomy useful for societies? | 375 |
| <i>J. Audouze</i> | |
| How, precisely, can astronomy be of benefit to anyone? | 381 |
| <i>B.J.T. Jones</i> | |
| The decline of natural sciences in the culture of mass media..... | 393 |
| <i>C. Elias</i> | |
| Astronomy and the media: a love story? | 405 |
| <i>H.M.J. Boffin</i> | |
| Public perception of astronomers: Revered, reviled and ridiculed | 411 |
| <i>M.J. West</i> | |
| Astronomy and astrology..... | 420 |
| <i>P. Zarka</i> | |
| Dispelling superstitions in Nepalese society with astronomy | 426 |
| <i>R. Shah</i> | |
| The role of astronomy and space sciences in Arab societies and cultures | 429 |
| <i>H.M.K. Al-Naimiy</i> | |
| Astronomers without borders | 438 |
| <i>M. Simmons</i> | |
| The magnificent night sky—why it must be protected from light pollution | 442 |
| <i>R.J. Wainscoat</i> | |
| Starlight: a common heritage | 449 |
| <i>C. Marin</i> | |
| Radio quiet, please! protecting radio astronomy from interference | 457 |
| <i>W. van Driel</i> | |
| Planetariums, theatres of the Universe..... | 465 |
| <i>A. Acker</i> | |
| From a closed world to the infinite Universe: Astronomy in prisons | 475 |
| <i>D. Briot</i> | |
| Astronomy outreach in hospitals and retirement homes..... | 481 |
| <i>R. Courtin</i> | |
| A dictionary of astronomy for the French Sign Language (LSF) | 483 |
| <i>D. Proust, D. Abiou & N. Chab</i> | |
| Astronomical activities with disabled people..... | 490 |
| <i>A. Ortiz-Gil, P. Blay, A. T. Gallego Calvente, M. Gómez, J. C. Guirado, M. Lanzara & S. Martínez Núñez</i> | |

| | |
|---|-----|
| The UNESCO Thematic Initiative on Astronomy and World Heritage | 494 |
| <i>A.P. Sidorenko</i> | |
| MENSURA CAELI: Territory, Town, Architectures, Tools | 497 |
| <i>M. Incerti & E. Antonello</i> | |
| The astronomical observatory of the University of Havana: A project for its rehabilitation as a center for science popularisation | 503 |
| <i>M. de la Guardia Durán</i> | |
| Reconstructing the astronomical heritage | 510 |
| <i>P. Planesas</i> | |
| Astronomy at the service of the Islamic society | 514 |
| <i>I.M. Fernini</i> | |
| Introducing astronomy into Mozambican society | 522 |
| <i>V.A.R.M. Ribeiro, C.M. Paulo, A.M.A.R. Besteiro, H. Geraldes, A.M. Maphossa, F.A. Nhanonbe & A.J.R. Uaissine</i> | |
| Astronomy in the society and culture of Estonia | 528 |
| <i>L. Leedjärv</i> | |
| Searching for a “black sky” in the Andes Mountains: A migratory process and identity formation of a Japanese astronomer in Peru | 533 |
| <i>N. Kato-Nitta</i> | |
| V. Astronomy as a tool for development and technologies | |
| Astronomy for international development | 539 |
| <i>G. Miley</i> | |
| Astronomy, technology development and industry | 547 |
| <i>L. Vigroux</i> | |
| Virtual Acoustic Space: Space perception for the blind | 556 |
| <i>L.F. Rodríguez-Ramos</i> | |
| What astronomy can bring to the hi-tech party | 564 |
| <i>J.E. Jones</i> | |
| Techies, thinkers and tinkerers: Why CFHT became a world-class telescope | 570 |
| <i>L. Bryson</i> | |
| Astronomy for African development | 577 |
| <i>K. Govender</i> | |
| Astronomy in post-apartheid South Africa | 587 |
| <i>P.A. Whitelock</i> | |
| Astronomy and political theory | 595 |
| <i>N. Campion</i> | |

| | |
|--|------------|
| Virtual Observatories | 603 |
| <i>F. Genova</i> | |
| The World's first global telescope network at your fingertips | 607 |
| <i>E.L. Gomez & H.L. Gomez</i> | |
| An astronomical observatory for Peru | 616 |
| <i>J. Quintanilla del Mar, B. Sicardi, V. Ayma Giraldo & V.R. Aguilar Callo</i> | |
| VI. Education and public understanding of astronomy | |
| Educational aspects of cosmology: Global Cosmology Teachers Academy | 622 |
| <i>G.F. Smoot</i> | |
| Early science education and astronomy | 629 |
| <i>D. Wilgenbus & P. Léna</i> | |
| International Schools for Young Astronomers and Teaching for Astronomy Development: two programmes of the IAU | 642 |
| <i>M. Gerbaldi, J.-P. DeGreve & E. Guinan</i> | |
| Universe Awareness: Inspiring young children around the world | 650 |
| <i>C.J. Ödman</i> | |
| Conveying astronomy to the public | 660 |
| <i>J. Fierro</i> | |
| No "explosion" in Big Bang cosmology: teaching kids the truth of what cosmologists really know | 666 |
| <i>A. Gangui</i> | |
| Black Holes, Quasars, Blazars, and all that... How to explain them to a lay audience? | 670 |
| <i>H. Hamidani & J. Mimouni</i> | |
| Status of astronomy at Mbarara University of Science and Technology, Uganda | 674 |
| <i>S. Anguma & E. Jurua</i> | |
| Improving the scientific literacy of Aboriginal students through astronomy | 679 |
| <i>R. Bhathal</i> | |
| Astronomical education in Mongolia | 685 |
| <i>A. Dulmaa, R. Tsolmon, Ch. Lkhagvajav, Sh. Jargalsuren, B. Bayartungalag & M. Zaya</i> | |
| Astronomy in additional education in Kazakhstan | 690 |
| <i>V. Zagainova</i> | |
| Astronomy education and scientific schools in Ukraine | 696 |
| <i>Y.S. Yatskiv & I.B. Vavilova</i> | |
| Astronomical education in Tajikistan. Project TAJASTRO | 704 |
| <i>K.I. Ibadinov & A.A. Rahmonov</i> | |

| | |
|--|-----|
| Non-formal education in astronomy: The experience of the University of Carabobo <i>N. Falcón</i> | 710 |
| Teaching astronomy and astrophysics with Hands-On-Universe and SalsaJ: stars, planets, exoplanets and dark matter..... <i>S. Faye & M. Faye</i> | 715 |
| The International Astronomy Olympiad | 720 |
| <i>M.G. Gavrilov</i> | |
| “Nuits des étoiles” events (1991-2008) and their impact on the French astronomical leisure landscape..... <i>O. Las Vergnas & E. Piednoël</i> | 725 |
| “Astrophysique sur Mesure”, E-learning in astronomy and astrophysics | 733 |
| <i>B. Mosser, A. Delsanti, D. Guillaume, C. Balança & C. Balkowski</i> | |
| Popularizing science through astronomy, an Algerian experience in grassroot ac- tivism and its academic spin-off | 741 |
| <i>J. Mimouni</i> | |
| Astronomy and space outreach new requirements for a new generation | 748 |
| <i>K. Nolan</i> | |
| Popularising astronomy in Iran..... <i>B.A. Tafreshi</i> | 754 |
| STAR WEEK: A successful outreach campaign in Japan..... <i>J. Watanabe</i> | 758 |
| Using videoconferencing for elementary/secondary teacher professional develop- ment | 763 |
| <i>M. K. Hemenway, M. Wetzel, M. Rood, C. Roberts-Gray & S. Preston</i> | |
| Some remarks on a current study involving preservice elementary teachers and some basic astronomical phenomena..... <i>A. Gangui, M. Iglesias & C. Quinteros</i> | 767 |
| Art exhibition “Astronomical Inspirations” | 771 |
| Author index | 776 |
| Subject index | 778 |
| Supplementary papers | 791 |