



**INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS**  
**UNION GEODESIQUE ET GEOPHYSIQUE INTERNATIONALE**

## **The IUGG Electronic Journal**

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This informal newsletter is intended to keep IUGG Member National Committees informed about the activities of the IUGG Associations, and actions of the IUGG Secretariat. Past issues are posted on the IUGG website (<http://www.iugg.org/publications/ejournals/>). Please forward this message to those who will benefit from the information. Your comments are welcome.

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### **1. Report on the Batsheva de Rothschild Workshop on the Atmospheric Global Electric Circuit**

The workshop was held from 5 to 10 February 2017 in the remote Negev Desert in southern Israel and co-sponsored by IUGG and IAMAS. The workshop brought together fifty researchers and students from 16 countries to discuss the latest developments and directions in the field of fair weather Atmospheric Electricity. Since the time of Benjamin Franklin we know that, in fair-weather conditions, there is a quasi-static vertical electric field at sea level of  $\sim 150 \text{ V m}^{-1}$  pointing downwards to the Earth, associated with a conduction current density of  $\sim 2 \text{ pA m}^{-2}$  flowing continuously from the atmosphere to the ground. Much subsequent research has concluded that this electricity is generated, and modulated, by global thunderstorm activity. The thunderstorms act like huge batteries/generators of current in the atmosphere, driving electrical currents upwards towards the ionosphere above thundercloud tops in disturbed weather regions, with the return currents flowing in fair weather regions. This conceptual view is known as the atmospheric global electric circuit (GEC).

In recent years, there has been a notable revival in fair-weather atmospheric electricity research because of the links found between atmospheric electricity and air pollution, radioactivity, cloud microphysics, dust outbreaks, climate change, biological processes and even space weather. Atmospheric electricity can be used as a sensitive diagnostic of changes in our environment, but may also have feedbacks on our environment itself. The vertical conduction current may impact the charging of cloud edges, influencing droplet interactions and possibly large-scale cloud properties themselves. Furthermore, new technologies are allowing us to expand the frontiers of atmospheric electricity research, using drones, balloons, and unmanned aerial vehicles for collecting data.

This workshop was divided into sessions dealing with *Processes and Generators in the GEC*; *Local Impacts on GEC parameters*; *New instrumentation for studying the GEC*; and *Numerical Modeling of the GEC*. In addition to the formal lectures and poster sessions, two evening discussions were held related to 1) developing uniform methodologies for data collection and analysis so that we can correctly compare and share data from widely-spaced locations around the globe, and 2) directions forward and future collaborations. Furthermore, two visits to the Atmospheric Electricity Observatories in Mitzpe Ramon and Mt. Hermon were organized for the workshop participants, including a balloon launch for measuring the cosmic-ray induced ionization profile above Israel. One key conclusion from the workshop was the need for the atmospheric science community to support the inclusion of affordable electric field meters on regular meteorological radiosondes launched every day by national Met Offices. Adding such small, cheap, disposable sensors will allow us to significantly advance our understanding of the GEC, its interaction with clouds, aerosols, cosmic rays and space weather, while allowing us to monitor long term changes in the GEC, and hence long term changes in global thunderstorm activity. More information on the workshop can be found at the website <http://cgprice.wixsite.com/gec2017>.

Colin Price, Head of the Workshop Committee

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## 2. Report on the IndoOS Review Workshop



*Participants to the IndoOS Review Workshop (Photo by IOC Perth Programme Office)*

From 30 January to 1 February, the CLIVAR/IOC-GOOS Indian Ocean Region Panel (IORP) met for its 13th session in Perth, Australia. The main agenda item of the meeting was the Indian Ocean Observing System (IndOOS) Review Workshop, jointly organized with the Sustained Indian Ocean Biogeochemistry and Ecosystem Research (SIBER) panel. The workshop consisted of 24 review presentations along three themes: Past and present of IndOOS; new scientific drivers in the Indian Ocean; and new technologies for future IndOOS, as well as two discussion sessions charged with identifying the scientific drivers of IndOOS and their observing requirements. There were broad review talks on the essential science questions and societal needs for Indian Ocean observations on the first day of the workshop. On the second day, there were review talks on ten years of IndOOS and a look forward to the role of new technologies for the future of IndOOS. The last day of the workshop

was dedicated to discussion sessions to outline the science drivers and observing requirements of IndOOS, to lead towards a framework for the IndOOS review white paper.

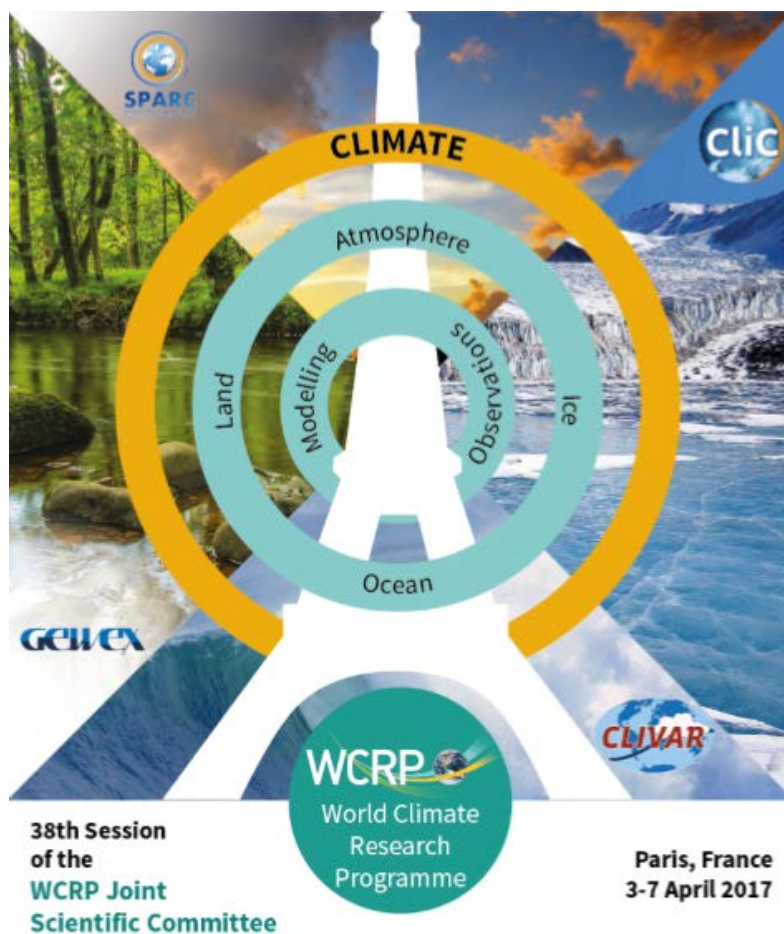
Important outcomes of the workshop were: a mission statement for IndOOS, terms of reference for the IndOOS Review and, most importantly, a list of scientific drivers and observational requirements for IndOOS. These science drivers will be used as a framework for the IndOOS review. One task of the subsequent white paper process is to further develop these requirements in terms of essential ocean variables, their spatial coverage and temporal/spatial resolution. A team of authors has been identified to write the IndOOS Review white paper, which is planned to be delivered by September 2017; and a panel review of the white paper is planned for February 2018, alongside the next IORP meeting.

The IORP-13 was organized alongside annual meetings of IOGOOS-13, SIBER-7, and IRF-7, as well as the first Scientific Steering meeting of IIOE-2 and a Bio-Argo Workshop. More details of all these events can be found at <http://www.clivar.org/events/iogoosiopsiberirf-annual-meetings-and-1st-iioe-2-steering-committee-meeting-and-bio-argo>.

Lisa Beal, co-chair, Indian Ocean Region Panel for CLIVAR/IOC-GOOS  
Nick D'Adamo, UNESCO/IOC PPO  
Jing Li, International CLIVAR Project Office (ICPO)

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### 3. Report on the 38th Joint Scientific Committee meeting of the World Climate Research Programme, 3-7 April 2017



WCRP was established in 1980 under the joint sponsorship of the International Council for Science (ICSU) and the World Meteorological Organization (WMO). In 1993 the Intergovernmental Oceanographic Commission (IOC) of UNESCO also became a sponsor. The main objectives of WCRP, defined at its inception and still valid today, are to determine the predictability of climate and to determine the effect of human activities on climate. WCRP is composed of four core projects universally known by their acronyms as CliC, CLIVAR, GEWEX, and SPARC. The WCRP organizational chart (see Fig. 1) also emphasizes CORDEX, the regional downscaling project. WCRP has also identified seven Grand Challenges that use the expertise within the core projects to examine important and topical issues. They are listed in Fig. 1. The WCRP Grand Challenge on “Water for the Food Baskets of the World”<sup>1,2</sup> intends to examine some of the same issues as the IAHS program Panta Rhei and it is to be hoped that a means of collaboration can be found. As shown in Fig. 1, supreme operational, scientific, management and financial control of WCRP rests with the Joint Scientific Committee, JSC. The success of WCRP means that this operational model is the standard operational model for ICSU inter-disciplinary bodies.

## WORLD CLIMATE RESEARCH PROGRAMME ORGANIZATION

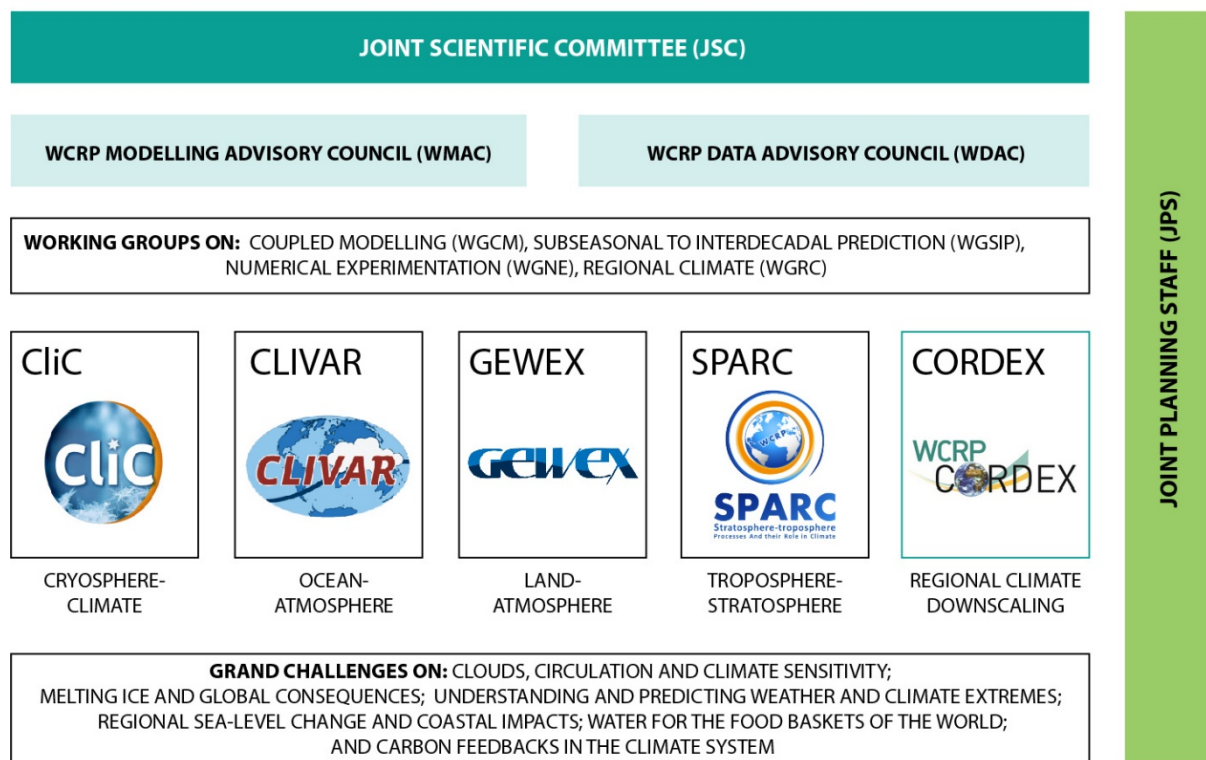


Fig. 1. Official organization chart for WCRP

The 38<sup>th</sup> Session of the WCRP JSC (see the group photo of the committee in Fig. 2) included reports and discussions from the core projects, from the Grand Challenges, from the two advisory councils WMAC and WDAC (see Fig. 1) and from partners (including IUGG and Future Earth) as well as the opening ceremony and discussions on communication and finances. The agenda, documentation and presentations can be found at: <https://www.wcrp-climate.org/jsc38-about>. A copy of the IUGG presentation can be downloaded from: <https://www.wcrp-climate.org/jsc38-agenda>.

<sup>1</sup> <https://www.wcrp-climate.org/grand-challenges/gc-water-availability>

<sup>2</sup> <http://www.gewex.org/about/science/wcrps-grand-challenges/water-for-the-food-baskets-of-the-world/>



The WCRP review panel includes: Julia Slingo (Chair), Mark New, Alan Thorpe, Steven Zebiak, Fumiko Kasuga (ex-officio member representing CSPR), Sergey Gulev, and Neville Smith. The panel is tasked to: a) provide strategic directions for future development of WCRP, b) review scientific achievements and impacts of WCRP since 2009, c) review appropriateness and effectiveness of the governance, operational structure, management and resourcing of WCRP, d) identify synergies between priorities of WCRP and its co-sponsors. In February 2017, WMO reduced its funding to WCRP<sup>3</sup>.

Various countries at various times in the past have elected governments that are not supportive of, and may be actively hostile, to the notion of climate change and as a consequence reduce or terminate funding to climate science. Such considerations motivated IUGG to pass Resolution Number 7 at its 2015 General Assembly. The finale of the resolution is that IUGG resolved to be steadfast in: (1) encouraging and supporting the participation of scientists in international scientific meetings and activities, (2) undertaking efforts to enhance fundamental understanding of geophysical processes and behavior, especially in the grand challenge areas, (3) increasing efforts to utilize scientific understanding for the benefit of society and the environment and for promotion of the economy and societal resilience; and (4) providing an independent voice in support of undertaking and relying on the most rigorous and well-tested scientific findings.

Tom Beer, IUGG Liaison to WCRP

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#### 4. Obituary

##### *Attia A.-S. Ashour (1924-2017)*



Professor Attia Abdel-Salam Ashour, President of IUGG (1975-1979), peacefully passed away on Monday, 17 April 2017, at his Dokki residence in Cairo, at age 93. Born on 13 September 1924 in Damietta, Egypt, Attia Ashour graduated from the Faculty of Science, Fouad 1-st University (later to become Cairo University) in 1944. He obtained his Ph.D. Degree in Mathematics from Imperial College in London, UK, in 1948. His tutors were no less than the famous scientists Sydney Chapman and Albert Price. In 1967, Ashour was granted the D.Sc. Degree in Mathematics from London University, thus becoming one of the very few Egyptians to hold such a degree.

Ashour's career started at the Department of Mathematics, Faculty of Science, Cairo University in 1944 as a teaching assistant, then as a lecturer, and he received a professorship in Applied Mathematics in 1966. He was Head of the Department for a long period of time, and became a professor emeritus in 1984. Ashour acquired an international status through his innovative work in mathematics, with applications in geophysics. He contributed to several fields of mathematics including theory of special functions and boundary-value problems as well as to theoretical geomagnetism. He led an active school of research in these fields and several scientists have obtained their M.Sc. and Ph.D. degrees under his supervision. He was one of the few world experts on the mathematical theory of electromagnetic induction. Several applications carry his name. Ashour was Visiting Professor to many scientific Institutions worldwide.

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<sup>3</sup> <http://www.nature.com/news/no-time-to-chop-funding-for-a-pivotal-climate-programme-1.21625>

Ashour was elected a member of the Egyptian Academy of the Arab Language in 1990. Ashour was the holder of many national and international prizes for his scientific work and for his national and regional efforts in diffusing and strengthening mathematical knowledge, The Order of Merit of Arts and Sciences First Grade, three times in 1966-1986 and 1988, The Order of Merit of the Republic of Egypt of the Fifth Grade in 1954 and of the second Grade in 1984, The Medal of the African Mathematical Union in 1990. Ashour was granted Chevalier dans l'Ordre de La Palme Académique by the French Government in 1985, and Chevalier dans l'Ordre National de Mérite from the French President in 1995 for his efforts in developing Egyptian-French scientific cooperation. Ashour was a Fellow of the Royal Astronomical Society (RAS) since 1954, and was elected a Foreign Associate of RAS, the highest recognition offered by this society for foreign scientists, in 1978. He served as a member of the Advisory Board to the Director General of UNESCO on *Science and the 21st Century*, President of the Arab Union of Mathematicians and Physicists (1975-1977), Vice-President of the African Mathematical Union (1976-1986). He was Chairman of the IAGA Interdivisional Working Group on International and External Fields (1973-1979). Ashour was elected Vice-President of the IUGG in 1971 and President of IUGG in 1975. Ashour was the Head of the International Center for Pure and Applied Mathematics (CIMPA) at Nice, France (1992-1996), and member of its Administrative Council (1997-2000). He is a founding member of the Arab Academy of Sciences. Ashour was a member of the Institut d'Egypte, and a multitude of other national and international scientific organizations.

He will be missed by his numerous students and colleagues, and all who knew him. He is survived by his wife Karima and his daughter Zeinab, currently Professor at the Faculty of Medicine, Cairo University. May God bless his soul.

Submitted by Ahmed Hady, Cairo University, Egypt

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## 5. Meeting calendar

A calendar of meetings of interest to IUGG disciplines (especially those organized by IUGG Associations) is posted on the IUGG website (<http://www.iugg.org/calendar.php>). Individual Associations also list more meetings on their websites according to their disciplines.

### *May*

- 17-19, IAG, Wroclaw, Poland, EUREF 2017 Symposium.  
Web: <http://www.igig.up.wroc.pl/euref2017>
- 20-25, JpGU, AGU, Makuhari, Japan, JpGU-AGU Joint Meeting 2017.  
Web: [http://www.jpгу.org/meeting\\_e2017/](http://www.jpгу.org/meeting_e2017/)
- 22-24, IAG, London, UK, DORIS Analysis Working Group meeting (AWG) of the International DORIS Service. Web: <http://ids-doris.org/ids/reports-mails/meeting-presentations/ids-awg-05-2017.html>
- 22-26, UNISDR, Cancun, Mexico, 2017 Global Platform for Disaster Risk Reduction.  
Web: <http://www.unisdr.org/conferences/2017/globalplatform/en>
- 22 May – 2 June, ICTP, IUGG, Trieste, Italy, Extended Workshop on Space Weather Effects on GNSS Operations. Web: <http://indico.ictp.it/event/7964/>
- 29 May – 2 June, ILC, Ljubljana, Slovenia, The Fourth World Landslides Forum 2017.  
Web: <https://www.wlf4.org/>
- 31 May – 2 June, GEO, College Park, MD, USA, 3rd Blue Planet Symposium.  
Web: <http://symposium.geoblueplanet.com/>

## June

- 6-9, ISPRS, Hanover, Germany, ISPRS Hannover Workshop 2017.  
Web: <https://www.ipi.uni-hannover.de/hrigi17.html>
- 11-17, IACS, SCAR, Fort Collins, CO, USA, 2017 Glacial Seismology Training School.  
Web: [http://polenet.org/?page\\_id=2769](http://polenet.org/?page_id=2769)
- 12-23, ICTP, IUGG, Trieste, Italy, Fourth Workshop on Water Resources in Developing Countries: Hydroclimate Modeling and Analysis Tools.  
Web: <http://indico.ictp.it/event/7969/>
- 18-23, IAHS, UNESCO, Birmingham, UK, HydroEco 2017: The 7th International Multidisciplinary Conference on Hydrology and Ecology.  
Web: <http://www.birmingham.ac.uk/generic/hydroeco2017/index.aspx>
- 25-30, IAMAS, Helsinki, Finland, ICNAA2017 - 20th International Conference on Nucleation and Atmospheric Aerosols. Web: <http://www.icnaa2017.net/>
- 26-30, CTBTO, Vienna, Austria, The CTBT: Science and Technology 2017 Conference (SnT2017). Web: <https://ctnw.ctbto.org/DMZ/snt2017.html>

## July

- 2-7, ICA, Washington, DC, USA, ICC 2017 - 28th International Cartographic Conference.  
Web: <http://icc2017.org/>
- 3-5, UCPS, Berlin, Germany, 1st IUGG Symposium on Planetary Science (IUGG-PS 2017) - Interdisciplinary observation and understanding of the Solar System.  
Web: <http://www.dlr.de/iugg-ps2017>
- 3-5, NC BRAZIL, IAMAS, Sao Paulo, Brazil. São Paulo School of Advanced Science on Climate Change: Scientific Basis, Adaptation, Vulnerability and Mitigation.  
Web: <http://www.incline.iag.usp.br/data/spsascc>
- 3-7, IAG, Paris, France. 2017 IGS Workshop.  
Web: <http://kb.igs.org/hc/en-us/articles/216574478-IGS-Workshop-2017>
- 7-9, IUGG, IAMAS, Toulouse, France. Training Workshop on Processing of Cloud Particle Measurements.  
Web: <http://www.halo.dlr.de/plans/documents/TrainingWorkshopPreliminaryAgenda.pdf>
- 9-15, IAHS, Port Elizabeth, South Africa. IAHS Scientific Assembly 2017.  
Web: <http://cwrr.ukzn.ac.za/iahs/call-for-papers/iahs-2017-in-south-africa---invitation>
- 10-12, IAG, Paris, France, Unified Analysis Workshop.  
Web: <http://ggosdays.com/en/conferences/unified-analysis-workshop>
- 10-14, WCRP, UNESCO-IOC, New York City, NY, USA. International WCRP/IOC Conference on Regional Sea Level Changes and Coastal Impacts.  
Web: [https://www.wcrp-climate.org/images/WCRP\\_conferences/Regional\\_Sea\\_Level\\_Changes\\_and\\_Coastal\\_Impacts/SeaLevel-Conference-2017-Flyer.pdf](https://www.wcrp-climate.org/images/WCRP_conferences/Regional_Sea_Level_Changes_and_Coastal_Impacts/SeaLevel-Conference-2017-Flyer.pdf)
- 16-29, CODATA, Beijing, China, CODATA International Training Workshop in Open data for Better Science, for Researchers from Lower and Middle Income Countries. Web: <http://www.codata.org/news/159/62/Apply-for-CODATA-International-Training-Workshop-in-Open-Data-for-Better-Science-Deadline-25-April-2017>
- 25-27, GRC, IAG, Sendai, Japan, 2017 GNSS Tsunami Early Warning System Workshop.  
Web: <https://geodynamics.org/cig/events/calendar/gnss-workshop/>
- July 30 - August 4, IAG, IASPEI, Kobe, Japan. IAG-IASPEI Joint Scientific Assembly 2017.  
Web: <http://www.iag-iaspei-2017.jp/>



## 6. Good Hope for Earth Scientists – joint IAPSO-IAMAS-IAGA Scientific Assembly



**Early Bird Registration Deadline extended to 12 May 2017!**



**Register at reduced rates**

The Early Bird Deadline has been extended to 12 May 2017. All authors, sponsors and potential delegates are invited to register before 12 May 2017. The registration fee will change to standard fees at 11pm / 23h00 (GMT+2) on 12 May 2017.

**IUGG vice-president Prof Kathy Whaler to welcome delegates to Joint Assembly 2017**

**Prof Kathy Whaler**  
Vice-President, University of Edinburgh



Prof Kathy Whaler will welcome delegates on behalf of the IUGG President.

Kathy Whaler has been Professor of Geophysics at the University of Edinburgh since 1994. Her main research interests are using permanent observatory and low Earth orbit satellite data to study the origin and maintenance of the Earth's geomagnetic field, and electromagnetic induction as a probe of the structure and dynamics of the crust and upper mantle, particularly in rifting environments. She is formerly Vice-President and then President of IUGG's International Association of Geomagnetism and Aeronomy.

<p>Arrange Travel Documents Now</p> <p><a href="#">Click Here</a></p>	<p>Early Bird Registration Deadline 12 May 2017</p> <p><a href="#">Register NOW</a></p>	<p>Sponsorship and Exhibition Opportunities</p> <p><a href="#">Read More</a></p>	<p>Accommodation</p> <p><a href="#">Read More</a></p>	<p>Star Alliance Flight specials Deadline 30 June 2017</p> <p><a href="#">Read More</a></p>
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