



CLIVAR
Open Science Conference
Qingdao, 2016



CHARTING THE COURSE FOR CLIMATE AND OCEAN RESEARCH

18-25 SEPTEMBER 2016 QINGDAO, CHINA

18, 24-25 September: **Early Career Scientists Symposium**

18 September: **Regional Stakeholder Forum**

19-23 September: **Open Science Conference**

2nd Announcement

www.clivar2016.org
info@clivar2016.org



Scientific Organising Committee

Detlef Stammer (Co-Chair)	University of Hamburg, Germany
Lisa Goddard (Co-Chair)	IRI, Columbia University, USA
Lixin Wu (Co-Chair)	Ocean University of China, China
Fangli Qiao (Co-Chair)	FIO, SOA, China
Krishna AchutaRao.....	IIT Delhi, India
Noel Baker.....	NASA, USA
Jerome Benveniste.....	ESA
Annalisa Bracco.....	Georgia Institute of Technology, USA
Pascale Braconnot.....	IPSL, France
Nathan Bindoff.....	University of Tasmania, Australia
Wenju Cai.....	CSIRO, Australia
Boris Dewitte.....	LEGOS, France
Clara Deser.....	NCAR, USA
Ken Drinkwater.....	IMR, Norway
Stephen Griffies.....	GFDL/NOAA, USA
Sergey Gulev.....	IORAS, Russia
Virginie Guemas.....	Institut Català de Ciències del Clima, Spain
Ed Hawkins.....	University of Reading, UK
Dunxin Hu.....	IOCAS, China
InSik Kang.....	Seoul National University, Rep. of Korea
Arun Kumar.....	NCEP/NOAA, USA
Carlos Moffat.....	University of California Santa Cruz, USA
Pedro Monteiro.....	CSIR, South Africa
Bill Merryfield.....	University of Victoria, Canada
Dahe Qin.....	CAST, China
James Renwick.....	Victoria University of Wellington, New Zealand
Graeme Stephens.....	JPL, USA
Seok Woo Son.....	Seoul National University, Rep. of Korea
Bjorn Stevens.....	MPI Hamburg, Germany
Toshio Suga.....	Tohoku University, Japan
Martin Visbeck.....	GEOMAR, Germany
Anna Wahlin.....	University of Gothenburg, Sweden
Weidong Yu.....	FIO, SOA, China
Tianjun Zhou.....	IAP CAS, China
Jiang Zhu.....	IAP CAS, China

Introduction

The Qingdao National Laboratory for Marine Science and Technology (QNLN) in China is proud to host the World Climate Research Programme (WCRP)'s CLIVAR Open Science Conference "Charting the course for climate and ocean research" in September 2016. QNLN is delighted of the opportunity to convene the international research community for this important event given its strong interest in promoting greater understanding of our climate and the ocean. The Open Science Conference, and the associated Early Career Symposium and Regional Stakeholder Forum, promise to bring together prominent international scientists and the future generation of scientific leaders.

Conference vision

"The collective voice and expertise of the international climate community is essential to shaping the international research agenda on the coupled ocean-atmosphere system. The World Climate Research Programme's (WCRP) core project on Climate and Ocean – CLIVAR - invites the international climate community to review the state of the science, to prioritize international research plans and to initiate and foster collaborations."

Qingdao

Qingdao, located in the southeast part of Shandong Province, is a beautiful seaside city with clear air and enchanting sea views. This city, bordering the Yellow Sea, has the largest bathing beach in Asia and produces the mellow Tsingtao Beer. To the east of the city, a short distance across the Yellow Sea, lie Korea and Japan, making the city an important port for international trade. The city hosted the Sailing Competition in the Olympic Games in 2008.

For thirty three years, until 1949, the city was a colony of Germany and Japan and handsome architecture from that period remains. Many skyscrapers and modern facilities have been built in recent years, and a subway is due to open in 2016 to complement the excellent public bus system. At night the Qingdao skyline, with its tall buildings and neon displays, rivals that of Shanghai.

Qingdao is an important center for marine science research and technology in China and home to several major ocean research institutions including:

The First Institute of Oceanography (FIO) of the State Oceanic Administration (SOA), The Institute of Oceanology, Chinese Academy of Sciences (IOCAS), Ocean University of China (OUC), Chinese Academy of Fishery Science Yellow Sea Fisheries Research Institute, and the new Qingdao National Laboratory for Marine Science and Technology (QNLN).

Conference Venues

Open Science Conference

Monday 19 September: QNLN Academic Exchange Center, Aoshanwei, Jimo

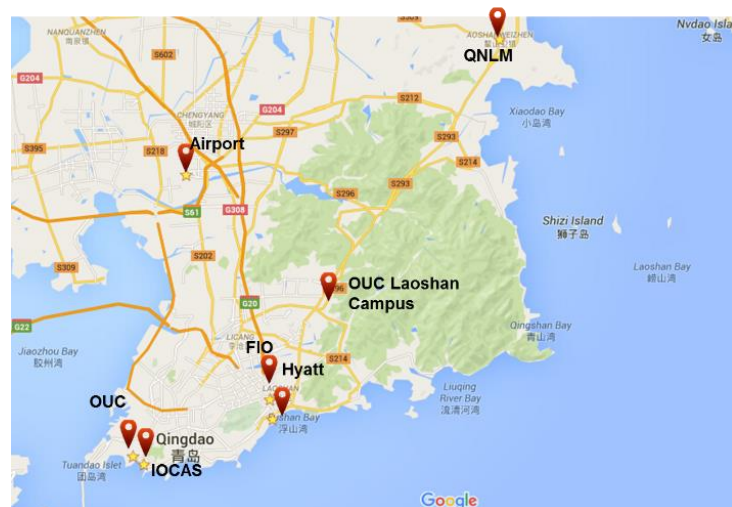
Tuesday – Friday 20-23 September: Hyatt Regency Qingdao

Early Career Scientists Symposium

18, 24-25 September: The First Institute of Oceanography, SOA

Regional Stakeholder Forum

18 September: Hyatt Regency Qingdao



Qingdao area map

Open Science Conference

Daily themes

Each day, plenary talks, the evening keynote, the parallel sessions and the poster session are organised around daily themes that, over the week, span the scope of CLIVAR science.

Monday, 19 September

Ocean's Role in the Climate System

The first day of the conference will focus on the ocean and its role in the climate system, highlighting the ocean's storage capacity and its function as "memory of the climate system". The parallel sessions provide a holistic view considering the entire climate system. The major role of the ocean, as well as the atmosphere, land and cryosphere processes will be addressed in relation to global energy, water, and carbon cycles.

Tuesday, 20 September

Climate Variability and Predictability

The second day is dedicated to the subject of climate variability and predictability, highlighting the ocean's role in both. The day is organised along timescales, recognizing that the spectra of most climate phenomena and processes are broad. However, while the boundary between climate timescales is blurred, many applications and impacts are stratified along those time scales. Parallel sessions will focus on the variability, predictability and simulation of climate at subseasonal-to-seasonal, interannual to decadal and centennial to millennial timescales.

Wednesday, 21 September

Understanding Ocean and Climate Processes

The third day of the conference will broadly address ocean processes, including those occurring across the range of space and time scales. The oceanic processes connected to climate, specifically those involved in coupled ocean-atmosphere interaction, are also part of the day's focus, including feedback processes and teleconnections.

Thursday, 22 September

The Ocean in a Warmer World

This day is dedicated to understanding the future of Earth's climate system. It will be concerned with potential changes in the climate system as well as with potential impacts.

Friday, 23 September

Climate Information and Sustainable Development and Future of Climate and Ocean Science

The last day of the conference is dedicated to a conversation about future priorities and opportunities for climate and ocean research.



Shilaoren Beach

Follow us



Facebook

www.facebook.com/clivar



Twitter

www.twitter.com/wcrp_clivar

Early Career Scientists* Symposium

The Early Career Scientists Symposium (ECSS) is a 3-day programme designed by, and for, early career scientists. It is a unique opportunity for young scientists with outstanding research potential to interact and exchange ideas with their peers and senior scientists on what is required to better understand aspects of the climate system and address research challenges of societal relevance. An ambitious agenda is being developed to engage the ECS in the science topics addressed in the OSC, discussing the future of international efforts to address critical science needs, considering current pressing scientific and related societal challenges.

The ECSS will include career development workshops, as well opportunities for the participants to discuss their scientific achievements, while building lasting relationships and collaborations with colleagues from different countries.

To apply for a place at the Symposium, participants must submit an abstract as first author to the main conference, and indicate that they would like to take part in the Symposium. Those selected to attend the ECSS will be notified at the end of May 2016.

** ECS are defined as students or those researchers within 5 years of their most recent degree.*

Regional Stakeholder Forum

The Regional Stakeholder Forum will be a one-day event with plenary presentations by users and providers of climate and ocean information, with a focus on identifying knowledge gaps and pathways to fill these. A panel discussion at the end of the day will summarize the Forum outcomes to be presented the next day at the Main Conference.

Travel Grants

Limited resources are available to support attendance of researchers from developing countries and early career scientists. Financial assistance can be requested only via the conference website on submission of an abstract. Deadline for requests is **15 March 2016**. Participants requesting support will be notified of the availability of funds in **May and June**.

Sponsorship

The CLIVAR2016 OSC invites public and private sponsorship. The Conference presents an excellent opportunity to promote your organisation or company. Exhibit booths are available. See the Sponsorship Prospectus at www.clivar2016.org or contact the ICPO Executive Director at valery.detemmerman@clivar.org to learn more. Any level of sponsorship will be rewarded in some way.

Timeline

December – Registration and Abstract Submission opens

15 March – Abstract submission and applications for support and to attend the ECSS close

May/June – Notification of abstract acceptance, travel grants and ECSS participation

18-25 September – Open Science Conference

Registration

The Conference venue can host a maximum of 700 participants. In order to avoid disappointment, the Organising Committee strongly encourages early registration. Registration will open in December 2015.

Registration fees:

	On or before 15 June 2016	After 15 June 2016
Regular	EUR 300	EUR 400
Students*	EUR 175	EUR 250
Stakeholder Forum only	EUR 40	EUR 50
One-day pass	EUR 175	EUR 250
Accompanying persons **	EUR 60	EUR 90

* *Students must supply a letter from their University or Faculty stating current enrolment.*

** *Includes only Welcome reception and Conference Banquet.*

Regular and Student registration fees cover admission to all oral and poster sessions, coffee breaks, Stakeholder Forum (if you sign up), Welcome Reception on Monday 19th September and Conference Banquet on Thursday 22nd September. There is no extra charge for those selected to attend the Early Career Scientists Symposium.

Lunches are not included as part of the conference registration. The venue has several restaurants that can cater for a large number of people. Alternatively, there are restaurants within walking distance of the venue.

Payment can be made using credit card (recommended) and bank transfer.

Cancellation policy: registration can be cancelled up until **15 August 2016**. An administration fee of 10% will be deducted from the amount paid. After that deadline, no refunds will be made.

Abstract submission

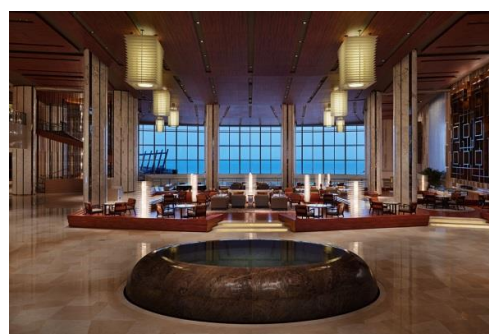
Abstracts can be submitted via the Conference website from December 2015 until **15 March 2016**. Select contributions will be invited for oral presentation, all others as posters. Contributors may submit up to 3 abstracts as first authors. All abstracts must be submitted in English, with a maximum of 3000 characters (including spaces), and must exclude symbols, mathematical formula and figures. Submission of an abstract implies that CLIVAR has permission to reproduce the abstract in the programme and reports related to the Conference.

Poster Clusters

To encourage coordination and further integration of research activities within and across WCRP, and with other climate and ocean research activities, communities are encouraged to self-organise and submit clusters of posters addressing a specific research topic. Poster clusters can address past accomplishments but should also highlight opportunities for future progress. A brief accompanying white paper can also be submitted for inclusion in the OSC programme materials. See the conference website: www.clivar2016.org for further information.

Evening Town Halls

In the evening of Tuesday and Wednesday there will be opportunities to hold town hall meetings to discuss new research directions and projects. More information will be made available on the conference website: www.clivar2016.org.



Hyatt Regency Lobby

PROGRAMME AT A GLANCE

	CLIVAR2016 Early Career Scientists Symposium	CLIVAR 2016 Stakeholder Forum	CLIVAR 2016 Main Open Science Conference					CLIVAR2016 Early Career Scientists Symposium	
			DAY 1	DAY 2	DAY 3	DAY 4	DAY 5		
	Sunday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	18-Sep	18-Sep	19-Sep	20-Sep	21-Sep	22-Sep	23-Sep	24-Sep	25-Sep
AM	FIO Registration	Hotel Registration	Registration & Transport to QNLN	Hotel	Hotel	Hotel	Hotel	FIO	FIO
	Opening session	Stakeholder Forum Plenary	Opening Session	Plenary 2	Plenary 3	Plenary 4	Plenary 5	Interactive workshop: Science frontiers	Working group sessions: science themes
	Introduction to the OSC			Climate Variability and Predictability	Understanding Ocean and Climate Processes	The Ocean in a Warmer World	Climate Information and Sustainable Develop-ment		
	Coffee/tea break		Coffee/tea break	Coffee/tea break	Coffee/tea break	Coffee/tea break	Coffee/tea break	Coffee/tea break	
	Plenary session: "CLIVAR in the context of Major Climate Programmes"		Keynote	Poster Session	Poster Session	Poster Session	Poster Session	Plenary 6 Future of Climate and Ocean Science	Working group sessions
	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Closing Ceremony	Lunch	Closure
PM	Meet-and-greet session and introduction to working groups	Stakeholder Forum Plenary	Plenary 1 Ocean's Role in Climate	Parallel 2.1 Intra-seasonal to Interannual	Parallel 3.1 Mixing & Stirring	Parallel 4.1 Modes	Working group presentations and workshop summary		
				Parallel 2.2 Decadal	Parallel 3.2 Ocean &Climate Dynamics	Parallel 4.2 Sea Level			
				Parallel 2.3 Centennial to Millennial	Parallel 3.3 Upwelling	Parallel 4.3 Boundary Current Systems			
	Coffee/tea	Coffee/tea	Coffee/tea	Coffee/tea	Coffee/tea	Coffee/tea	Coffee/tea		
PICO-style short presentations	Panel discussion	Parallel 1.1 Energy	Poster Session	Poster Session	Poster Session	Science topics panel			
		Parallel 1.2 Carbon							
		Parallel 1.3 Water							
	Closure	Transport to hotel	Keynote	Keynote	Keynote				
Evening		Registration & Refreshment	Icebreaker Reception	Townhalls	Townhalls	Banquet			

Sessions

Monday: Ocean's Role in the Climate System

Opening Ceremony

Keynote: Thomas Stocker

Plenary 1 Speakers:

- Monika Rhein: Energy
- Laurent Bopp: Carbon
- Ray Schmitt: Water

Parallel sessions

1.1 Energy: This session will focus on the distribution, transport, and transfer of energy within the entire climate system.

Chairs: Karina von Schuckman, Jonathan Gregory

1.2 Carbon: This session will address the relative contributions of ocean, atmosphere, and land to carbon cycling, the variability of that cycle, the processes involved, and how human emissions of carbon have altered these processes.

Chairs: Pedro Monteiro, Curtis Deutsch

1.3 Water: The session will bring together all elements of the climate system to address the global water cycle, its variability and change.

Chairs: Paul Durak, Sonia Seneviratne

Tuesday: Climate Variability and Predictability

Plenary 2 Speakers:

- Harry Hendon: Intraseasonal to Interannual
- Rowan Sutton: Decadal
- Kim Cobb: Centennial to Millennial

Poster Session

Parallel sessions

2.1 Intraseasonal to Interannual: The session will address phenomena and predictions acting at weeks to months. This timescale is critical to early warning systems and to disaster risk management.

Chairs: Aida Diongue, Rodney G. Martinez

2.2 Decadal: The session will address phenomena and predictions relevant to the climate in the next year to the next decade into the future. This timescale is important to longer term planning and management of natural and built resources.

Chairs: Paco Doblado Reyes, Yochanan Kushnir

2.3 Centennial to Millennial: The session will address the phenomena and predictions/projections of the climate beyond the timescale at which initial conditions contribute meaningful information. Climate change is an important part of this session, but as well as natural processes that act at very long timescales.

Chairs: Pascale Braconnot, Axel Timmermann

Poster Session

Keynote

Wednesday: Understanding Ocean and Climate Processes

Plenary 3 Speakers:

- Raffaele Ferrari: Mixing and Stirring
- John Marshall: Ocean and Climate Dynamics
- Weidong Yu: Upwelling and Frontal Zones

Poster Session

Parallel Sessions

3.1 Mixing and Stirring: The session will cover the physical understanding and modelling challenges related to ocean mixing, from the processes relevant to local-scale parameterizations to those implicated in the global-scale circulation

Chairs: Marina Levy, Baylor Fox Kemper

3.2 Ocean and Climate Dynamics: This session will focus on the role of ocean in climate, particularly through coupled ocean-atmosphere interactions, and including ocean-driven teleconnections.

Chairs: Shoshiro Minobe, Matthew England

3.3 Upwelling and Frontal Zones: The session will deal with boundary processes in a very general sense. This includes ocean-sea ice boundaries as well as interactions between physical and bio-geochemical processes and the marine ecosystems.

Chairs: Enrique Curchitser, Mauricio Mata

Poster Session

Keynote: Jennifer MacKinnon

Thursday: The Ocean in a Warmer World

Plenary 4 Speakers:

- Clara Deser: Climate Modes
- Anny Cazenave: Sea Level
- Fan Wang: Boundary Currents

Poster Session

Parallel sessions

4.1 Climate Modes: This session will address efforts to better understand how modes of variability may change in a warmer world, the ability of our observational networks and models to represent such changes, and the implications of those changes for regional climate change.

Chairs: *Krishna AchutaRao, Eric Guilyardi*

4.2 Sea Level: This session will focus on regional-to-global sea level change, including the processes driving that change. The session will also cover current estimates and future projections of the magnitude of that change and what it means for coastal communities.

Chairs: *Aimee Slangen, Benoit Meyssignac*

4.3 Boundary Current Systems: The session will focus on potential changes in ocean boundary currents, which are critical to poleward heat transport. Local and remote drivers and impacts will be considered.

Chairs: *Sabrina Speich, Toshio Suga*

Poster Session

Keynote: Wenju Cai



Hyatt Regency Terrace

Friday

Plenary 5: Climate Information and Sustainable Development

Chair: *Martin Visbeck*

This session will target the contributions of climate research toward climate services and sustainable development, and how those communities can help identify priorities for improved climate research and knowledge. Talks and panel discussion in this session will address the range of ways that the climate and ocean community serves societal needs. The needs and our ability to address them vary across timescale, and are often specific to the social or institutional context. Observations, prediction/projections, and scientific understanding are all part of the portfolio that the climate community has built and continues to develop.

Keynotes: **Jane Lubchenco**
Corinne Le Quere
Arame Tall

Panel Discussion:

Vladimir Ryabinin, Guy Brasseur, Lisa Goddard, Bruce Hewitson

Plenary 6: Future of Climate and Ocean Science

Chair: *Annalisa Bracco*

The second session will specifically address the new CLIVAR science plan in the context of the future of climate and ocean research, its challenges and ways to proceed over the next decades. Talks and panel discussion in this session will offer a vision for the future of ocean and climate research. Gaps, needs, opportunities, and potentials for partnerships will be highlighted.

Keynotes: **Valerie Masson- Delmotte**
Matt Collins
Nicolas Gruber

Panel Discussion:

In-Sik Kang, Lynne Talley, Gavin Schmidt, Lixin Wu

Useful Information

Qingdao Liuting International Airport is the main airport serving the city of Qingdao, China. It is about 27 kilometres from the main Conference venue. Apart from regular routes to Hong Kong and Taipei, Qingdao is also a major transfer hub from inland China, South Korea and Japan.

Transportation to/from airport:

Taxis: A taxi ride from the airport to the Conference venue costs about 100 RMB. The taxi stand at the airport is in the basement and is clearly indicated – just follow the signs.

Shuttle Buses: There are five shuttle bus lines (<http://www.travelchinaguide.com/cityguides/shandong/qingdao/getting-around.htm>), transferring passengers between the airport and downtown Qingdao.

Weather

September is by far the best weather month in Qingdao. Average daytime/nighttime temperatures are 26°C/19°C. Average rainfall days in September is 7 days, average precipitation is 63mm.

Time Zone

GMT +0800

Currency and ATM

The official currency of China is RMB. Visa, MasterCard, American Express, JCB, Diners Club, Discover and other major international credit cards are accepted at most larger establishments or can be used to withdraw cash from ATMs throughout the city.

Electricity

Voltage is 220 and most outlets accept US and European style plugs.

Tipping

In China it is not customary to tip restaurant waiters and taxi drivers.

Visa

Participants should check with the nearest Chinese Embassy or Consulate whether a visa is necessary for entry into China and how to apply. If you need a visa to enter China, you will need an invitation letter. This letter will be issued by the Local Organising Committee if requested during the registration process. You will need to provide the following information, together with a copy of the passport information page:

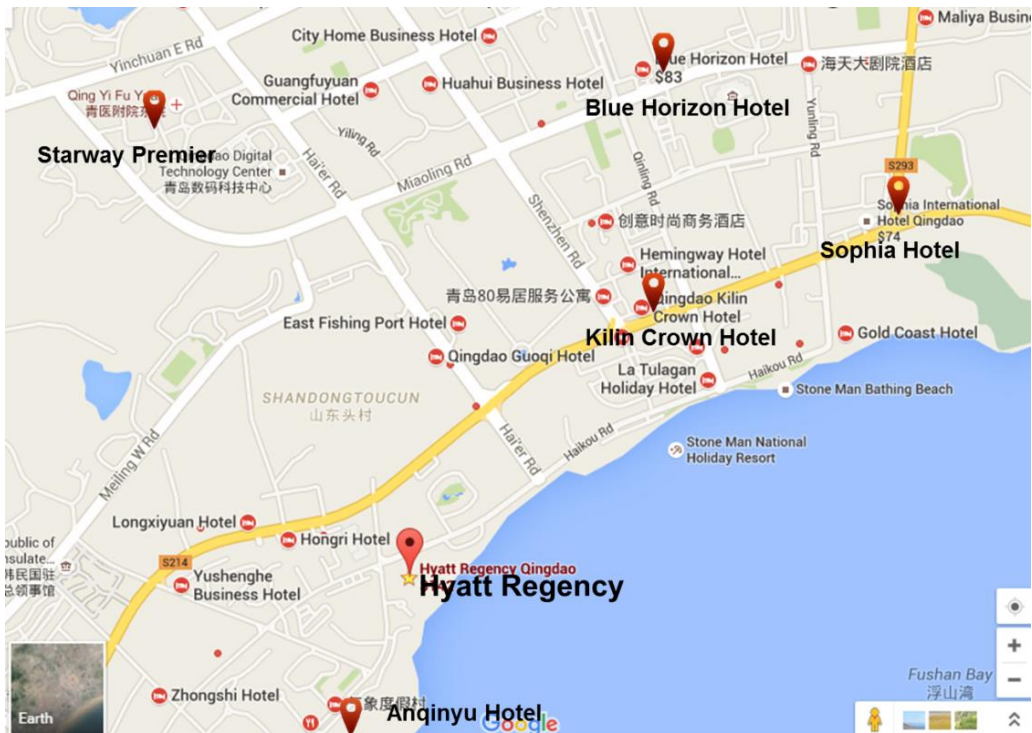
- Full Name (as in passport)
- Date of birth
- Passport Number:
- Passport issue date:
- Passport expiry date:
- Gender
- Nationality:
- Country issuing passport:
- Residence place (city and country)
- Which institution will cover your travel expenses.

If you require an invitation letter for visa purposes, you must register **before 31 July**. After this deadline, the Local Organising Committee cannot guarantee that a letter will be issued in time for you to obtain your visa to travel to China.



Laoshan Mountain Park

Accommodation



Hyatt Regency Qingdao (Conference venue)
Special conference rates are available at the Hyatt Regency (see www.clivar2016.org). The number of rooms at the preferential rate is limited so we recommend reserving early.
Website:
<http://qingdao.regency.hyatt.com/en/hotel/home.html>

Other hotel nearby:

Kilin Crown
No.197 Hongkong East Road Laoshan District
1.4km (15 minute walk) to Hyatt
BUS 386 From Hongkong dong Road Station to Haikou Road Station.
Website:
<http://www.bestwestern.net.cn/en/hotels/best-western-premier-qingdao-killin-crown-hotel-qingdao-78606>

Blue Horizon Hotel
No.9-2, Miaoling RD., Laoshan District
2.1km (30 minute walk) to Hyatt
BUS 623 From Miaoling Road Station to Haikou Road Station.
Website <http://en.lanhai.cn/lhls/>

Sophia Hotel
No.217 Hongkong dong Road Laoshan District
2.3km (30 minute walk) to Hyatt
BUS 386 From Qingdao Grand Theatre Station to Haikou Road Station.
Website(Chinese Only)
http://www.sophiahotel.com.cn/_d270199947.htm
Can be booked via Agoda or booking.com

An Qin Yu Hotel
No.85 Donghaidong Road Laoshan District
0.6 km (10 minute walk) to Hyatt
Telephone(Chinese Only):+86-0532-8373-7777

Starway Premier Qingdao Exhibition Center Hotel (preferential rates for the ECSS)
No.68, Shandong Tou Road, Laoshan District
0.6 km (10 minute walk) to FIO
Website(Chinese Only):
<http://www.huazhu.com/xingcheng>
Can be booked via Agoda or booking.com

Organisers and Sponsors

Hosting Organisation



Qingdao National Laboratory for Marine Science and Technology (QNLN) is the hosting organisation of the CLIVAR Open Science Conference. QNLN is jointly

supported by the Ministry of Science and Technology, Shandong Province and Qingdao Municipality. It carries out fundamental research and develops cutting-edge technology through its position as China's most comprehensive and internationally-open marine research center and collaborative innovation platform.

Local Organisers



The First Institute of Oceanography (FIO), State Oceanic Administration (SOA), China, was established in 1958. FIO is a comprehensive oceanography research institute,

engaged in both basic and applied research in oceanography and marine-related science and technology, The Early Career Scientists Symposium will be held at FIO.



Ocean University of China (OUC) is a comprehensive university with strengths in oceanography and fisheries science. Since its founding in 1924, the OUC has long been nationally ranked in

China in a number of academic disciplines.



The Institute of Oceanology, Chinese Academy of Sciences (IOCAS), was founded in 1950. It is the first ocean research institute in China. Since its foundation, the institute has established long-term

relationships with scientific research institutes from more than 40 countries or regions.

Sponsor



The European Space Agency (ESA) is Europe's gateway to space. Its mission is to shape the development of Europe's space capability and ensure that investment in space continues

to deliver benefits to the citizens of Europe and the world.



Olympic Sailing Center, Downtown Qingdao

Local Organising Committee

Name	Organization
Xiaopei Lin (Co-Chair)	OUC /QNLN
Yafeng Yang (Co-Chair)	FIO
Valery Detemmerman	ICPO
Anna Pirani	ICPO
Nico Caltabiano	ICPO
Lei Han	ICPO
Lina Kang	ICPO
Huihui Sun	QNLN
Mike Patterson	US CLIVAR
Kristan Uhlenbrock	US CLIVAR
Mike Sparrow	WCRP
Catherine Michaut	WCRP
Shuang Li	OUC
Yixin Ma	IOCAS
Carmen Comparetto	ESA Conference Bureau