



Open Science Conference

25-29 September 2022

hybrid in Cape Town, South Africa

Wamkelekile!
Welkom!

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Note our events!

Welcome reception 25 Sep UCT GBS Conference Centre, roof terrace, 6.00 pm

Conference banquet 28 Sep Pigalle Cape Town, 7.30 pm

Virtual networking event 28 Sep CMC platform, 4.30 pm





Open Science Conference

Welcome to Cape Town for the 2022 SOLAS Open Science Conference!

We have an exciting and interesting programme lined up for our 8th installment of the SOLAS Open Science Conference, a hybrid event in Cape Town, South Africa. During the coming week, you have the opportunity to explore the full range of SOLAS sciences, from the core themes of the science plan during plenary lectures, to emerging issues in discussion sessions, to the future wave during the Early Career Scientists' Day. You will learn and exchange about cutting edge research in the field, present your own findings, and connect with colleagues from all over the world.

SOLAS is a bottom-up organisation, in which the scientific community sets the agenda, and since 2000, the SOLAS Open Science Conferences play a key role in that process.

Cape Town is the ideal coastal city to host the SOLAS OSC this week. South Africa's "Mother City" is surrounded by the Atlantic and Indian Oceans, which strongly influence the local climate, and is also a gateway city to the Southern Ocean and Antarctica. The Benguela upwelling system on South Africa's west coast is one of the world's most productive ecosystems, supporting a diversity of socio-economically important fisheries, and is the focus of active cross-cutting SOLAS research. To the east is the Agulhas Current, the strongest western boundary current on Earth, that transports heat and salt from the Indian to the Atlantic Ocean, thus playing a critical role in global ocean circulation. South Africa also has a strong geographic advantage for conducting research in the Southern Ocean, as many SOLAS scientists will know from time spent in Cape Town harbor before and after sampling expeditions. SOLAS scientists have explored the approximately 4000 km of open and ice-covered ocean that separate Cape Town from Antarctica in the context of all the SOLAS science themes. Additionally, the Cape Point Global Atmosphere Watch station, located 60 km south of Cape Town, hosts a variety of research platforms developed to investigate the marine atmosphere.

We want to thank all the sponsors and funders of this conference, as well as the sponsors of the international SOLAS programme (SCOR, Future Earth, iCACGP, and WCRP) for all their support over the years. We also thank the SOLAS International Project Office and the Local Organising Committee for their hard work and dedication in assuring that we have a fun and comfortable meeting this week, both for people on-site and remote. Finally, we thank you, the SOLAS community, for making SOLAS the productive, exciting, and important organisation that it is.

Enjoy!

Cécile Guieu
Co-Chair, SOLAS Scientific
Steering Committee

Minhan Dai
Co-Chair, SOLAS Scientific
Steering Committee

Katye Altieri
Chair, SOLAS 2022 Local
Organizing Committee

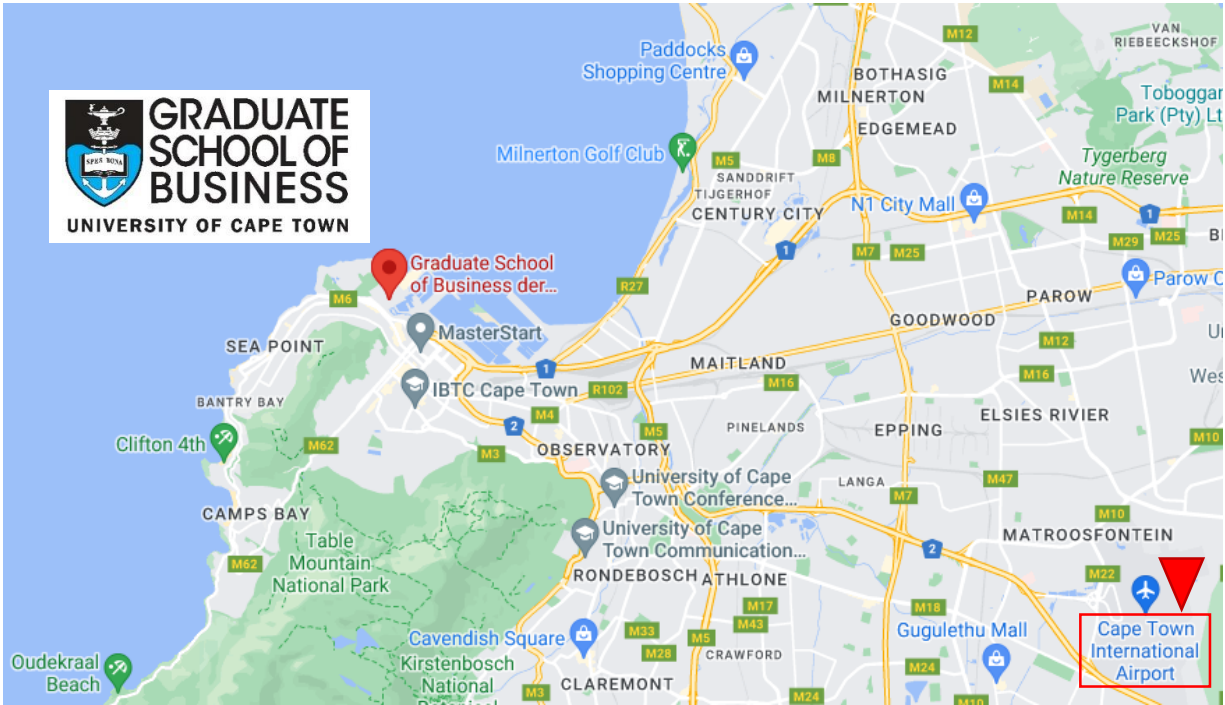




Open Science Conference

2 Conference venue

Welcome to the new University of Cape Town (Graduate School of Business (UTC GSB) Academic Conference Centre!



UTC GSB Academic Conference Centre

9 Portswood Rd,
Victoria & Alfred
Waterfront, Cape
Town

<http://www.gsb.uct.ac.za/>

Registration desk This service will be situated in the foyer of the conference centre. Please collect your conference material when you arrive at the conference centre. If you require any assistance, please visit the registration desk.

Time	Friday, 23 Sep	Time	Saturday, 24 Sep	Time	Sunday, 25 Sep	Time	Monday, 26 Sep	Time	Tuesday, 27 Sep	Time	Wednesday, 28 Sep	Time	Thursday, 29 Sep		
08:00-08:30	Clic2Clouds meeting Registration	08:30	Clic2Clouds meeting Registration	08:30	Early Career Scientist Day Registration	08:30	Conference opening Welcome / SOSTAS introduction: K. Althoff / C. Galter and M. Dal	08:30	Theme 2: Air-sea interface and fluxes of mass and energy Introduction by session chairs: T. Bal and A. Rutgersson	08:30	Theme 4: Interconnections between marine ecosystems, aerosols and clouds Introduction by session chairs: M. Kanakidou and J. Oudrválek	08:30	Theme 5: Ocean biogeochemical control on atmospheric chemistry Introduction by session chairs: M. Kanakidou and T. Lohr		
08:30	09:30	08:30	09:30	09:30	09:30	08:40	08:40	08:40	08:40	08:40	08:40	08:40	08:40		
09:30	Tutorial Talks: Atmospheric processes	09:30	Discussion Processes from Day 1: Paper outlining & plans for compiling. Identify leads	09:30	Workshop 1: Gent and proposal writing: tips and tricks	08:40	Theme 1: Greenhouse gases and the oceans Introduction by session chairs: M. Comiso and G. Zhang	08:40	M. Cronin (USA): Large-scale patterns of warm layers, cool skin corrections to bulk sea surface temperature and Reflections on the Observing Air-Sea Interactions Strategy (OASIS) - <i>on-site</i>	08:40	M. Wang (China): Micro-spectroscopic characterization and Ice formation potential of marine related aerosol particles - <i>on-line</i>	08:40	M. Gail Tapas (Spain): From weather to climate scales in ocean biogeochemistry-atmospheric chemistry studies: mind the gaps - <i>on-site</i>		
10:30	Discussion: Atmospheric processes	10:30	Discussion Processes from Day 1: Paper outlining & plans for compiling. Identify leads	10:30	Workshop 1: Gent and proposal writing: tips and tricks	09:20	M. Ahmad (Canada): Undersaturation of oxygen in the subsurface waters of the Northwest Pacific during the winter-time connections from Argo-Q2 data - <i>on-line</i>	09:20	S. Nicholson (South Africa): Interrogating thermal bases in air-sea CO2 fluxes through top-down and bottom-up observational constraints - <i>on-site</i>	09:20	K. Rossini (Ireland): Marine aerosol-cloud interactions and investigations into typical degrees of air pollution over the Southern Ocean - <i>on-site</i>	09:20	S. Pongopichan (Thailand): Applying synchrotron radiation-based attenuated total reflection Fourier transform infrared to evaluate the effects of shipping emissions on fluctuations of PM10-bound organic functional groups - <i>on-site</i>		
11:00	11:00	10:40	11:10	10:40	11:10	10:00	10:20	10:20	10:20	10:20	10:20	10:20	10:20		
11:00	Tutorial Talks: Ocean & sea ice processes	10:40	Working Group Discussion: Building on keynote talk	11:10	Workshop 2: Equity, Diversity and Inclusion within our Scientific Field	10:00	Theme 3: Atmospheric deposition and ocean biogeochemistry Introduction by session chairs: S. Daso and J. Mahjoia	10:50	Polar Oceans Introduction by session chair: K. Althoff	10:50	O. Wurl (Germany): HALOBTATES: An autonomous research platform for high-resolution measurements of the sea surface microlayer - <i>on-line</i>	10:50	Indian Ocean / Upwelling Introduction by session chairs: A. Mahajan and A. Singh / M. Comiso and A. Körtzinger	10:40	Climate Intervention / Science and Society Introduction by session chairs: E. van Doorn and A. Lenton
12:15	Discussion: Ocean & sea ice processes	10:40	Integration into ongoing synthesis papers	11:10	Scientific Field	11:00	M. Kusku (Japan): Application of Fe isotope ratios for a better understanding of the Fe cycle in the surface ocean and lower atmosphere - <i>on-line</i>	11:00	O. Crabeck (Belgium): Sea ice biogeochemistry and polar oceans: Important fact and challenge - <i>on-site</i>	11:00	H. Hayashida (Japan): Bi-polar perspectives on projected changes in sea-ice algae blooms from a global sea ice-ocean coupled model - <i>on-line</i>	11:00	Z. Lachner (AUS): Air-sea interaction and physical biogeochemical coupling in the Indian Ocean: examples of recent advances and gaps in understanding - <i>on-site</i>	11:00	N. Menges (Germany): Carbon Dioxide Removal measures - Feasibility, uncertainties, and their contribution to net-zero - <i>on-line</i>
12:45	Lunch	12:45	Lunch	12:40	Lunch	12:10	Lunch	12:10	12:10	12:10	12:10	12:10	12:10		
13:45	Tutorial Talks: Exchange Processes	13:45	Clic2Clouds terms of Reference: Discussion and Next Steps	13:00	Departure from Conference Centre by bus	12:10	D. Hamilton (USA): Earth, Wind, Fire, and Pollution: Aerosol Nutrient Sources and Impacts on Ocean Biogeochemistry - <i>on-site</i>	13:30	N. Steiner (Canada): Coupling of ocean-ice-atmosphere processes: from sea-ice biogeochemistry to aerosols and Clouds (Clic2Clouds) - <i>on-site</i>	13:30	R. Oliveira (Brazil): The tropical and subtropical South Atlantic Ocean biogeochemistry responses for the IPCC AR5 future scenarios using EOCGENE 1.0 - <i>on-site</i>	12:30	H. Li (China): Global Shipping emission inventories with high spatial and temporal resolution - <i>on-line</i>		
14:45	Discussion: Exchange Processes	13:45	Other business: Plans for ECR field school, SOSTAS discussion session	13:00	Departure from Conference Centre by bus	12:10	R. Lamare (France): Polar sea-ice aerosols in CMIP6 models - <i>on-line</i>	13:30	M. Ragozzini (South Africa): Eastern Boundary Upwelling Systems in a warming world: Inconsistence trends - <i>on-site</i>	13:30	Cosmoshield in Safe Landing Climate: Lisa Miller, Canada; Neil Harris, UK; Erik van Doorn, Germany	12:30	J. Danabasog (USA): Sea-air transfer and dispersal of harmful sea spray aerosols - <i>on-site</i>		
15:15	Coffee/Tea break	15:45	Coffee/Tea break	13:00	Departure from Conference Centre by bus	12:10	M. Ragozzini (South Africa): Eastern Boundary Upwelling Systems in a warming world: Inconsistence trends - <i>on-site</i>	14:50	Coffee/Tea break	14:50	Coffee/Tea break	14:50	Conference closing		
15:30	Keynote C. Hays (AVI) Contrasting Arctic & Antarctic Sea-ice	15:45	Coffee/Tea break	13:00	Departure from Conference Centre by bus	12:10	M. Ragozzini (South Africa): Eastern Boundary Upwelling Systems in a warming world: Inconsistence trends - <i>on-site</i>	14:50	Coffee/Tea break	14:50	Coffee/Tea break	14:50	Conference closing		
16:30	Discussion: Connections to Clic2Clouds	17:00	Coffee/Tea break	13:00	Departure from Conference Centre by bus	12:10	M. Ragozzini (South Africa): Eastern Boundary Upwelling Systems in a warming world: Inconsistence trends - <i>on-site</i>	14:50	Coffee/Tea break	14:50	Coffee/Tea break	14:50	Conference closing		
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4 Login Details - join the virtual events!

All conference participants are invited to join the virtual events!

-  **Plenary sessions and discussion sessions** 26-29 Sep will be held on Zoom.
-  **Online poster session** 27 Sep at 4.20 pm will be held via the online platform gather.town.
-  **Virtual networking event** 28 Sep at 4.30 pm will be held in gather.town.

How to join the online events?

The login details to join the virtual parts of the conference, such the online presentations, the discussion sessions, the poster session as well as the virtual networking event, have been sent to you by e-mail.

If you have not received the login details via e-mail, please contact the registration desk on-site or send us an e-mail, if you are attending the conference online.

We look forward to meeting you virtually!

See you soon on Zoom and in gather.town!

zoom



Gather



Open Science Conference

5 Welcome reception

Join the Welcome Reception at the rooftop terrace of the UCT GSB Conference Centre. Meet the other conference attendees and enjoy the breath-taking nighttime scenery from the rooftop terrace. All conference participants are invited to the event!

Finger-food (also vegetarian) and beverages will be served and are included in the conference fee. A 4 Piece Jazz Band will entertain us.



Welcome reception

Sunday, 25 Sep, 6 pm.

Roof terrace, University of Cape Town,
Graduate School of Business Conference Centre

Open Science Conference

6 Poster session on-site

Monday 26 Sep, 4.20-7 pm, on-site at the rooftop

Poster sessions during the conference will be held onsite and online via the platform *gather.town*. Onsite poster presenters, please come to the registration desk asap and pick up your individual poster board number and put up your poster.

ALL poster presenters (on-site and online), are required to upload and present their posters in *gather.town*. Note that all posters will be visible on *gather.town* during the whole day of the virtual poster session. For login information see page 5.

Author	Title	No.
Theme 1 - Greenhouse gases and the oceans		
Laique Merlin Djeutchouang	A semi-idealized model sampling and reconstruction approach across a Southern Ocean front: the sensitivity of pCO ₂ reconstructions to sampling scales	101
Martin Hellmich	Ocean-air trace gas fluxes derived from open-path FTIR atmospheric concentration gradient measurements	102
Alexander Soloviev	Air-Sea Exchange of Greenhouse Gases Under Tropical Cyclones	103
Frauke Bunsen	The impact of recent climate change on the ocean carbon sink	104
Tanvi Nagwekar	Effects of Ocean Alkalinity Enhancement by olivine dissolution on the 21st century CO ₂ uptake by the oceans under different emission scenarios	105
Mercedes de la Paz Arandiga	The unaccounted oceanic sink of anthropogenic N ₂ O	106
Theme 2: Air-sea interface and fluxes of mass and energy		
Paul Zieger	Bioaerosol Emissions from Baltic Sea Water	201
Faith February	Sea spray aerosol size distributions at the air-sea interface in False Bay, South Africa	202
Tesha Toolsee	How do intra-seasonal variability modes dominate the annual cycle of ΔpCO ₂ and FCO ₂ in the Southern Ocean?	203
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Monday 26 Sep, 4.20-7 pm, on-site at the rooftop

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Marie Boye	Responses of phytoplankton to Patagonian dust input and anthropogenic changes in the future Southern Ocean	304
Susanne Fietz	Atmospheric trace metal over the oceans south off Southern Africa	305
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Asmita Singh	The seasonal photophysiological responses of Atlantic Southern Ocean phytoplankton to iron addition	605
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7 Poster session online

Tuesday, 27 Sep, 4.20-7 pm, online in gather.town

All attendees (also the on-site ones) are invited to attend the online poster session!

Online poster sessions during the conference will be held via the platform *gather.town*. For login information see page 5.

ALL poster presenters (on-site and online), are required to upload and present their posters in gather.town. Note that all posters will be visible in gather.town during the whole day of the online poster session. For login information see page 5.

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Manon Rocco	Air-sea fluxes of biogenic and oxygenated organic gases from biologically productive waters in the South-West Pacific via ship-born mesocosm studies	212
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Andrea Milinković	Impacts of biomass burning versus anthropogenic aerosol deposition on the surface layers in the central Adriatic Sea: A mesocosm study	309
Wylee Fitz-Gerald	Investigating the impact of aerosols on primary producers in the Northeast Pacific Ocean	310
Mei Zheng	Contribution of Anthropogenic Source to Marine Aerosol in Northwest Pacific Ocean	311
Minhan Dai	Carbon Fixation and Export in oligotrophic ocean (Carbon-FE)	312
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Dihui Chen	Strong formation of NO ₂ Cl in the marine atmosphere over the northwest Pacific associated with submarine volcanic eruption	404
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Yating Gao	Unexpected high field blank and new findings in monitoring reactive gases and their particulate counterparts in the marine atmosphere over the Northwest Pacific using an AIM-IC	409
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Royston Uning	The interplay between the marine atmospheric boundary layer VOCs and the surface ocean bacteria and bacterial-derived DOM cycles: A laboratory and field studies	511
Yoko Iwamoto	Spatial distribution of iodine in the tropical western North Pacific surface water	512
Frances Hopkins	From genes to models: Molecular insight into reduced sulfur cycling in temperate shelf sea waters	513
Margarita Reza	Reduction of Iodate in aqueous organic and inorganic aerosol particle proxies	514
Yugo Kanaya	Tropospheric ozone depletion and iodine chemistry over the western Pacific low-latitude region: Project overview and model system development toward a global assessment	515
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8 Event location with direction map

Conference venue to conference dinner location



<https://pigalle.capetown/>

Pigalle Restaurant – conference dinner location

57A Somerset Rd, Green Point, Cape Town, 8051

By bus take MyCiti bus lines 108, 109 and T02X from UCT Graduate School of Business conference centre to the restaurant Pigalle. How the MyCiti bus system works is explained on page 11.



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9 Restaurant guide V&A Waterfront

The V&A Waterfront is a 123-hectare mixed-use development, offering everything from residential to commercial property, hotels, retail districts, extensive dining, leisure and entertainment facilities. You find over 80 restaurants and eateries from which to choose in the V&A Waterfront. We created a list of recommended restaurants and café's for you, see below.



Best Seafood

Baía baiarestaurant.co.za/ - fine cuisine with harbour and ocean views.
 Upstairs @ Quay Four quay4.co.za/ - nice views!
 Willoughby & Co willoughbyandco.co.za/ - Japanese culinary experience.



Coffee shops & Light meals

Tashas Café - tashascafe.com/
 Starbucks - starbucks.co.za/
 COOKED V&A Waterfront inside Watershed - thecookedcook.co.za



Casual Dining

Gibson's Gourmet Burgers gibsonsburgers.co.za/ - gourmet burgers and ribs.
 City Grill citygrill.co.za/gallery/ - showcasing South African Traditional food.
 Kapstadt Brauhaus kapstadtbrauhaus.co.za/ - traditional German cuisine.
 Karibu eatery kariburestaurant.co.za/food/food-menu/ - nice place with good food and very South African menus.
 The Yard theyardatsilo.co.za/food/ - cool place on the other side of the Warfront known as the silo district.
 Si cantina sociale sicantinasociale.co.za/menu/ - very nice high end tapas bar.



Halal Friendly


Colcacchio colcacchio.co.za/ - artisanal wood-fired pizzas, pastas and gourmet salads.



V & A Waterfront Cape Town
 Pixabay

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10 General information

 **Good to know** City of Cape Town is in the Western Cape Province of South Africa | Time zone GMT + 2 | 3.7 million people including all sub- and exurbs | three main languages spoken in Cape Town (English, Afrikaans, Xhosa) | South Africa has 11 official language and regionally there are differences in dominance and mix.

Transport - getting around

 **Taxis, avoid unlicensed taxis** and taxi minibuses (typically Toyota Quantums 12 seaters) that operate without official routes, stops and timetable. They are not safe for tourist and most locals!
We recommend to use the **MyCiti bus system** and **Uber**, or ask your hotel to call you a taxi. For your own safety, please do not just hail a cab.

How to take the MyCiti bus

You need a myconnect card loaded with money from MyCiti Stations and participating retailers to travel with MyCiti busses. There are MyCiti bus stops at the airport and the Waterfront where you can buy and load a card. Visit these websites to read about MyCiti bus:

www.myciti.org.za/en/discover-myciti/the-a-z-of-using-myciti/



Airport transfer

MyCiti bus goes to/from Cape Town airport/V&A Waterfront in approx. 20 min drive and costs approx. R64, 3.60 €. Info on this transport can be found on the MyCiti website see here: www.myciti.org.za/en/routes-stops/airport-services/

Ulysses Tours offers door-to-door airport transfers to/from the Cape Town airport. You will be picked up with a name board. Book here:

<https://ulysses.crownsoftware.co.za/>




Uber drivers are also providing airport transport. Airport transport to/from the V&A Waterfront costs approx. 10 €.






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Various useful information


 **ATM** All major South African banks and foreign currency converters can be found in the main V&A Waterfront mall as well as at the aquarium.

 **Café** There are many nice café's at the waterfront mall as well as work space benches in the upper floor of the Waterfront mall during the week for those who prefer to work surrounded by people.



 **Covid-19** SOLAS recommends that all attendees wear a mask and follow hygiene measures. Covid-19 rapid test will be available at the registration desk. Covid-19 testing centre at the V&A Waterfront: Battery Park @ V&A Waterfront, 19 Dock Rd. What to do when tested positive while staying in Cape Town, visit this website with useful information: www.capetown.travel/i-tested-positive-for-covid-19-while-on-holiday-in-cape-town-now-what/



 **Homelessness situation** in Cape Town is currently probably at its worst and there is no way not to notice the large number of homeless people and tents all around town. If you want to help you can buy night shelter or meals via different apps. Homeless shelters in Cape Town:

Haven Night Shelters, buy a bed for someone here: haven.org.za/

U-turn, buy meals, showers, clothing or a bed for a night vouchers that you can then give to people instead of cash. homeless.org.za/vouchers/




R75



Ladles of love donate money for the meal program. ladlesoflove.org.za/




Buy Vouchers
Vouchers provide meals and clothing, as well as support and rehabilitation. By removing cash, they reduce drug use too.

 **Phone/Internet** Get a virtual/digital sim card which enables your phone to work in the region traveling without roaming fees. Providers are e.g. *Worldsim*. www.airtel.in/blog/prepaid/what-is-virtual-sim-card-and-how-to-get-it/




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 **Sightseeing** with the hop on hop off **sightseeing red bus**. Not expensive and offers a good value if you use them for a full day. The nearest station is right in front of the Aquarium, down the stairs from the conference. More here: www.citysightseeing.co.za/




 **Souvenirs** At the Waterfront, 17 Dock Rd are many local craft and souvenir shops like: Wild Thing Africa, Siyakatala, Sunshine Crafts or V&A Waterfront Watershed and many more.

 **Tipping** is common in the range of **10-15%** in a restaurant or any other larger service and many service providers rely on tipping. Also, petrol attendants and in smaller towns also tip official parking guards. Most people tip between R5 and R20, so, if you plan a road trip, keep some small change available.



 **Xhosa and Afrikaans language guide** - How to say the following sentences in Xhosa // Afrikaans:
 Good day - Molweni // Goeie dag
 How are you? - Ninjani? // Hoe gaan dit met jou?
 Thank you - Enkosi // Dankie
 Have a good day - Nibenemi emnandi // Lekker dag vêrder

 For further information, please visit the SOLAS conference website as well as the official Cape Town tourism website:
<https://uctcmc.eventsair.com/solas-osc2022/general-information>

<https://www.capetown.travel/travel-wise/>



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11 Sponsors and Contact

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