

ICC 2023



# 31<sup>ST</sup> INTERNATIONAL CARTOGRAPHIC CONFERENCE

13 - 18 AUGUST 2023 | CAPE TOWN | SOUTH AFRICA

SMART CARTOGRAPHY FOR SUSTAINABLE DEVELOPMENT



International Cartographic Association  
Association Cartographique Internationale



National  
Research  
Foundation

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# ICA Executive Committee



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Secretary General



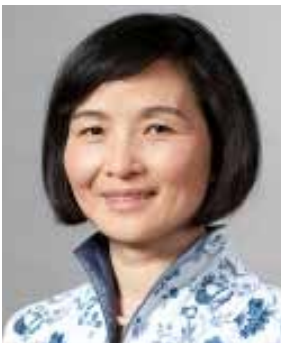
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President: Local Organizing Committee



**Dr Derek Clarke**  
Conference Coordinator and Treasurer



**Prof Serena Coetzee**  
Scientific Programme



**Ms S'lindi Mhlongo**  
Registration



**Ms Janusha Singh**  
Marketing



**Ms Thabisile Rambau**  
Map Exhibitions



**Dr Lauren Williams**  
Technical Tours and Pre-conference Workshops



**Mr Luhann van Zyl**  
Social Programme

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Adedayo Adeleke  
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Serena Coetzee  
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Vit Vozenilek  
Waldirene Carmo  
Wangshu Wang  
Weihua Dong  
Willem Landman  
Xiang Zhang  
Xiaobai Angela Yao  
Xintao Liu  
Yashena Naidoo  
Yifang Ban  
Yoshiki Wakabayashi  
Yu Feng  
Zahn Munch  
Zinhle Mashaba-Munghemzulu

# Sponsors



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# Exhibitors

**Chongqing Survey Institute**

**Department of Agriculture Rural Development and Land Reform: NGI**

**Department of Agriculture Rural Development and Land Reform: SPLUM**

**East View Geospatial**

**Geo-Information Society of South Africa (GISSA)**

**HERE Technologies**

**Kartoza**

**Leica Geospatial**

**National Research Foundation**

**NTG Solutions**

**Optron**

**Qingdao Surveying & Mapping Institute**

**Rugged Mobile**

**SDG Data Alliance**

**Shanghai Municipal Institute of Surveying and Mapping**

**SOAR**

**South African Geomatics Council (SAGC)**

**South African National Space Agency**

**Survey of Israel**

**The Fourth Surveying and Mapping Institute of Guizhou Province**

**The Third Surveying and Mapping Institute of Guizhou Province**

**UN-GGIM Africa**

**Vexcel Imaging GmbH**

**Wanscan Consulting**

## Keynote Speakers



### Barend Erasmus

**Dean: Faculty of Natural and Agricultural Sciences  
University of Pretoria**

Keynote title:  
**Maps for a just climate transition**

Barend Erasmus is an expert in climate change adaptation and the associated sustainability transformations. He is the Dean of the Faculty of Natural and Agricultural Sciences at the University of Pretoria, and this position provides a powerful platform to explore partnerships for sustainability transitions. Previously, he was the Director of the Global Change Institute (GCI) at the University of the Witwatersrand (Wits), where he also held an industry-sponsored research chair in Global Change and Sustainability. Under his leadership, the Global Change Institute at Wits grew in impact, stature and funding, and its members remain involved in key decision-support structures in local, provincial and national government.

Barend has always had interests in interdisciplinary work. His doctoral degree at the University of Pretoria was the first assessment of climate change impacts on biodiversity in South Africa, and the core paper from that study continues to be relevant in international literature. Over time, his research interests expanded from biodiversity and climate change impacts, to a systemic approach to sustainability in rural landscapes. He is passionate about post-graduate training, and students are deeply embedded in collaborative and interdisciplinary research programmes.



### Georg Gartner

**Head: Research Division Cartography  
Vienna University of Technology**

Keynote title:  
**Revisiting the Relevance of Cartography**

Georg Gartner is a Professor for Cartography and Geo-Mediatechniques at the Research Group of Cartography at the Vienna University of Technology. He holds graduate qualifications in geography and cartography from the University of Vienna and the Vienna University of Technology, including a habilitation.

He served as Dean of Academic Affairs of the Faculty of Mathematics and Geoinformation of Technische Universität Wien from 2008 to 2014. He served as president of the International Cartographic Association (ICA) in the term 2011–2015, has acted in several boards, including the Executive Board of the Austrian Geographic Society (ÖGG), as Vice-President of the Austrian Society for Surveying and Geoinformation (OVG), as member of the Editorial Board of The Cartographic Journal, the International Journal of Cartography and Kartographische Nachrichten.

He is editor of the book series Lecture Notes on Geoinformation and Cartography (Springer-Verlag) and Editor-in-Chief of the Journal on Location-based Services (Taylor & Francis). He has founded the Conference Series on Location-based Services. He was co-founder of the International Master programme on Cartography with TU München, TU Dresden and Universiteit Twente. His main research interests lie in the role of modern cartography and applying LBS and interactivity to this role.





## Greg Scott

**Inter-Regional Advisor and UN-GGIM Secretariat**

**United Nations Statistics Division, Department of Economic and Social Affairs**

Keynote title:

### **The UN-IGIF in Action: Opportunities for Cartography and GIScience**

Following a 25-year journey in Geoscience Australia in several key geospatial roles, Greg Scott is now based in the United Nations Statistics Division in New York. In his role as Secretariat of UN-GGIM, Greg has provided strategic policy advice and leadership, and guided the development, coordination and implementation of the substantive global geospatial program and content for UN-GGIM since 2012.

A major focus for Greg over the past 5 years has been leading the development and implementation of 'country owned, and country led' global geospatial information frameworks and guides within the umbrella of UN-GGIM. This includes the United Nations Integrated Geospatial Information Framework (UN-IGIF). The UN-IGIF is aimed at strengthening national geospatial information management in countries, developing countries in particular, and stimulates improved understanding and decision-making to support national development priorities and global development agendas – such as the Sustainable Development Goals (SDGs).

Greg has a Graduate Diploma in Geography from the Australian National University, and a PhD in Geomatics Engineering from the University of Melbourne.



## Patricia Solís

**Executive Director, Knowledge Exchange for Resilience**

**Arizona State University**

Keynote title:

### **The Power of Mapping as Knowledge Exchange for a more Resilient Future**

Patricia Solís is designer, director, co-founder of YouthMappers, a consortium of student-led mapping chapters on 300+ university campuses in 65+ countries. She is Executive Director of the Knowledge Exchange for Resilience and Associate Research Professor in the School of Geographical Sciences and Urban Planning, Arizona State University. Her expertise centers on the application of participatory geospatial technologies for humanitarian, environment and development needs.

Patricia serves a diplomatic appointment as the first woman President of the PanAmerican Institute of Geography and History for the Organization of American States. Her research has been supported through competitive funding agencies such as NSF, NASA, USAID, NOAA, USGS, private foundations and donors. Patricia has published dozens of scholarly articles, books, and white papers for leading journals, frequently co-authored with youth and community partners. She has been a Fulbright Specialist and received the Distinguished Service Honors from the American Association of Geographers.



## Pali Lehohla

Statistical and Policy Advisor, Strategist and Consultant Former Statistician-General

Keynote title:

**Towards Cultural Economic Geography as a driver of sustainable development – Cartography beyond coordinate geometry**

Pali Lehohla is the former Statistician-General of South Africa, a position he held from the year 2000 up to 2017. He was co-chair of PARIS21 and was the Chair of the United Nations Statistics Commission. He was the founding chair of the Statistics Commission of Africa (StatCom Africa) and chaired the African Symposium for Statistical Development (ASSD). He was the Vice President of the International Statistics Institute (ISI). He served as one of the twenty-five-member panel on Data Revolution appointed by the UN Secretary General. Pali has been a forceful advocate for improving the Civil Registration and Vital Statistics systems in Africa. He consulted extensively in the in conflict, out of conflict and fragile states on matters statistics. In 2018 he became a Research Associate at Oxford University. For twenty years to date he has been a weekly columnist in the Business Report, over a month to-date he is a weekly columnist in the Sunday Times Daily Online.

Pali is the co-director of the Economic Modelling Academy (EMA) that aims to train society in economic policy formulation based on the principles and laws of motion of economics. He is a board member of the Foundation for Human Rights as well as a board member for the Institute of Economic Justice at Wits. He was awarded Honorary doctorates by the Universities of Stellenbosch, Kwa-Zulu Natal, and Zululand. His alma mater, at forty years of existence, the Regional Institute of Population Studies at the University of Ghana, recognized him for his contribution in the African public service. Pali is a professor of practice at the University of Johannesburg.



# Programme at a Glance

Time	Sunday 13 August 2023	Monday 14 August 2023	Tuesday 15 August 2023
08:00		Registration opens (Registration Foyer)	Registration opens (Registration Foyer)
09:00		Technical Sessions [UN GGIM Africa]	Technical Sessions Exhibition Map Exhibition Poster Session Sponsor Talk [UN GGIM Africa]
10:00		Opening of Exhibitions Refreshment Break	Refreshment Break
10:30		Keynote: Georg Gartner	Keynote: Greg Scott
11:20		Technical Sessions Exhibition Map Exhibition Technical Tours [UN GGIM Africa]	Technical Sessions Exhibition Map Exhibition Technical Tours Poster Session [UN GGIM Africa]
12:40		Break Commission meetings	Break Commission meetings Young Cartographers Lunch & ICA Scholarship Awards
14:30	Registration opens at 13:00	Technical Sessions Exhibition Map Exhibition Sponsor Talk [UN GGIM Africa]	Technical Sessions Exhibition Map Exhibition Poster Session Sponsor Talk [UN GGIM Africa]
15:30	Set up exhibition stands, map exhibitions, posters	Refreshment Break	Refreshment Break
16:00		Technical Sessions Exhibition Map Exhibition Sponsor Talk [UN GGIM Africa]	Technical Sessions Exhibition Map Exhibition Poster Session [UN GGIM Africa]
17:00			
17:30			
18:30	Opening Ceremony (Auditorium 1, entry with conference name tag)	Reception cocktails (Exhibition area)	
19:00	Keynote: Barend Erasmus		
20:00			
21:00			
22:00			

**[UN GGIM Africa] and [SDG data alliance workshop] are hosted at the CTICC in parallel, but are not part of the ICC 2023.**

<b>Wednesday</b> <b>16 August 2023</b>	<b>Thursday</b> <b>17 August 2023</b>	<b>Friday</b> <b>18 August 2023</b>		<b>Time</b>
Registration opens (Registration Foyer)	Registration opens (Registration Foyer)	Registration opens (Registration Foyer)		<b>08:00</b>
Technical Sessions Exhibition Map Exhibition Technical Tours [UN GGIM Africa]	Technical Sessions Exhibition Map Exhibition [UN GGIM Africa]	Technical Sessions Exhibition Map Exhibition [UN GGIM Africa] [SDG data alliance workshop from <b>8:30</b> ]	General Assembly (Hotel Sky)	<b>09:00</b>
Refreshment Break	Refreshment Break	Refreshment Break Close of exhibitions		<b>10:00</b>
Keynote 4: Patricia Solis	Keynote 5: Andiswa Mlisa	Technical Sessions Exhibition Map Exhibition Technical Tours [UN GGIM Africa] [SDG data alliance workshop to <b>11:40</b> ]		<b>10:30</b>
Technical Sessions Exhibition Map Exhibition Technical Tours [UN GGIM Africa]	Technical Sessions Exhibition Map Exhibition Technical Tours [UN GGIM Africa]		<b>11:20</b>	
Break Commission meetings	Break Commission meetings	Break Commission meetings		<b>12:40</b>
Technical Sessions Exhibition Map Exhibition [UN GGIM Africa]	Technical Sessions Exhibition Map Exhibition [UN GGIM Africa] [SDG data alliance workshop from <b>14:00</b> ]	Closing Session (Auditorium 2)	[UN GGIM Africa]	<b>14:30</b>
Refreshment Break	Refreshment Break			<b>15:30</b>
Technical Sessions Exhibition Map Exhibition [UN GGIM Africa]	Technical Sessions Exhibition Map Exhibition [UN GGIM Africa] [SDG data alliance workshop <b>to 17:30</b> ]			<b>16:00</b>
				<b>17:00</b>
				<b>17:30</b>
				<b>18:30</b>
				<b>19:00</b>
				<b>20:00</b>
				<b>21:00</b>
				<b>22:00</b>

Conference Dinner  
(GOLD restaurant)

# Technical Tours

## Maps: Communicating Vital Information to Policy Makers

<b>Date</b>	Monday, 14 August
<b>Host</b>	South African National Biodiversity Institute (SANBI)
<b>Departure from CTICC</b>	10:45
<b>Departure from host venue</b>	12:45
<b>Venue</b>	Centre for Biodiversity and Conservation, Kirstenbosch
<b>Venue capacity per session</b>	80 people
<b>Transport Cost</b>	R140
<b>Venue limitations</b>	Venue is on 2nd floor with no lift access, the venue is therefore unfortunately not wheelchair friendly.
<b>Details</b>	Maps are more than just illustrations that help you navigate from point A to point B. There are powerful tools that allows user to visualise data, see trends and spur decision-makers into action. The SANBI team will showcase how the use of maps in the National Biodiversity Assessment has been used to visualise trends, spur conservation interventions, and help shape national policy. The SANBI team hopes that their presentations will engage attendees and stimulate conversation on best practices.

## Chief Directorate: National Geospatial Information, operational outputs

<b>Dates</b>	Monday, 14 August; Tuesday, 15 August; Wednesday, 16 August
<b>Host</b>	Chief Directorate: National Geospatial Information (CD:NGI)
<b>Departure from CTICC</b>	10:45
<b>Departure from host venue</b>	12:45
<b>Venue</b>	Department of Agriculture, Land Reform and Rural Development, Mowbray
<b>Venue capacity per session</b>	20 people
<b>Transport Cost</b>	R240
<b>Venue limitations</b>	None
<b>Details</b>	The technical tour showcases historic survey instruments and computing equipment that were used to establish and maintain South Africa's national control survey system and national mapping series, TRIGNET (South Africa's CORS Network), Aerial Triangulation and Digital Elevation Capture (ATEC), 1:50 000 Topographical Compilation and small and medium scale mapping.

## GMES & Africa: Marine and Coastal Operations for Southern Africa and the Indian Ocean

<b>Dates</b>	Tuesday, 15 August; Wednesday, 16 August; Thursday, 17 August
<b>Host</b>	Council for Scientific and Industrial Research (CSIR)
<b>Departure from CTICC</b>	10:45
<b>Departure from host venue</b>	12:45
<b>Venue</b>	CSIR, Rosebank
<b>Venue capacity per session</b>	20 people
<b>Transport Cost</b>	R240
<b>Venue limitations</b>	None
<b>Details</b>	The MarCOSIO project focuses on the use of earth observation science, to develop products and services to promote the sustainable use of marine and coastal resources and governance across the Southern Africa and Indian Ocean regions. This technical tour will showcase digital decision support tools and data products in the following domains: Fisheries and aquaculture, marine and maritime services, coastal monitoring.

### Geospatial Datasets for a 3D City Model of Cape Town

<b>Dates</b>	Wednesday, 16 August at 8h00 – 12h30
<b>Host</b>	City of Cape Town: Geospatial Unit
<b>Departure from CTICC</b>	08:00
<b>Departure from host venue</b>	12:45
<b>Venue</b>	City of Cape Town Council Chambers, 6th floor Podium Block, Civic Centre
<b>Venue capacity per session</b>	100 people
<b>Transport Cost</b>	R130
<b>Venue limitations</b>	None
<b>Details</b>	The City of Cape Town's Geospatial Unit is continuously striving towards a future 3D City Model. The Unit's active acquisition, research and development of 3D data and tools, to support this vision will be presented.

### SA Navy Hydrographic Office operational outputs and facility tour

<b>Dates</b>	Thursday, 17 August
<b>Host</b>	SA Navy Hydrographic Office operational outputs and facility tour
<b>Departure from CTICC</b>	10:30
<b>Departure from host venue</b>	12:45
<b>Venue</b>	SA Navy Hydrographic Office, Muizenberg Mountains
<b>Venue capacity per session</b>	15 people
<b>Transport Cost</b>	R315
<b>Venue limitations</b>	None
<b>Details</b>	The technical tour will comprise of an overview presentation regarding the work of the SA Navy Hydrographic Office, which include the production of navigation charts and a tour of the facilities.

### Emergency Policing Incident Control (EPIC) Operations

<b>Dates</b>	Friday, 18 August
<b>Host</b>	City of Cape Town: Emergency Policing Incident Control
<b>Departure from CTICC</b>	10:30
<b>Departure from host venue</b>	12:45
<b>Venue</b>	City of Cape Town, Parow
<b>Venue capacity per session</b>	20 people
<b>Transport Cost</b>	R240
<b>Venue limitations</b>	None
<b>Details</b>	Present the use of various technologies and analysis to inform operations within the Safety and Security Directorate of the City of Cape Town.

# Business Meetings of ICA Commissions and Working Groups

Thursday	12:40-14:30	Commission on Art and Cartography (chair: Taien Ng-Chan)	Auditorium 2
Monday	12:40-14:30	Commission on Atlases (chairs: René Sieber, Eric Losang)	Room 1.41 & 1.42
Monday	12:40-14:30	Commission on Cartographic Heritage into the Digital (chair: Mátyás Gede)	Room 1.63 & 1.64
Thursday	12:40-14:30	Commission on Cartography and Children (chairs: José Jesús Reyes Nunez, Carla Cristina Sena)	Room 1.41 & 1.42
Monday	12:40-14:30	Commission on Cartography in Early Warning & Crisis Management (chairs: Jiping Liu, Milan Konečný, Jie Shen, Christophe Lienert)	Room 1.61
Monday	12:40-14:30	Commission on Cognitive Issues in Geographic Information Visualization (chairs: Pyry Kettunen, Amy Griffin)	Room 1.62
Wednesday	12:40-14:30	Commission on Education and Training (chair: Tao Wang)	Room 1.41 & 1.42
Tuesday	12:40-14:30	Commission on Generalisation and Multiple Representation (chairs: Lawrence Stanislawski, Izabela Karsznia)	Room 1.41 & 1.42
Thursday	12:40-14:30	Commission on Geospatial Analysis and Modeling (chair: Xintao Liu)	Room 1.61
Tuesday	12:40-14:30	Commission on Geospatial Semantics (chairs: Francis Harvey, Dalia Varanka)	Room 1.43 & 1.44
Tuesday	12:40-14:30	Commission on Location Based Services (chair: Haosheng Huang)	Auditorium 2
Wednesday	12:40-14:30	Commission on Map Production and Geoinformation Management (chair: Peter Schmitz)	Room 1.63 & 1.64
Wednesday	12:40-14:30	Commission on Maps and Graphics for Blind and Partially Sighted People (chair: Waldirene Carmo)	Room 1.43 & 1.44
Monday	12:40-14:30	Commission on Marine Cartography (chair: Lysandros Tsoulos)	Auditorium 2
Tuesday	12:40-14:30	Commission on Mountain Cartography (chair: Dusan Petrovic)	Room 1.63 & 1.64
Thursday	12:40-14:30	Commission on Open Source Geospatial Technologies (chair: Silvana Camboim)	Room 1.63 & 1.64
Monday	12:40-14:30	Commission on SDI and Standards (chairs: Serena Coetzee, Franz-Josef Behr)	Room 1.43 & 1.44
Friday	12:30-14:00	Commission on Sensor-driven Mapping (chair: Jonathan Li)	Room 1.62
Tuesday	12:40-14:30	Commission on the History of Cartography (chair: Imre Demhardt)	Room 1.61
Friday	12:30-14:00	Commission on Topographic Mapping (chair: Alexander Kent)	Auditorium 2
Friday	12:30-14:00	Commission on Toponymy (ICA-IGU joint commission) (chair: Peter Jordan)	Room 1.41 & 1.42
Friday	12:30-14:00	Commission on Ubiquitous Mapping (chair: Yoshiki Wakabayashi)	Room 1.63 & 1.64
Friday	12:30-14:00	Commission on User Experience (chairs: Robert Roth, Luciene Delazari)	Room 1.43 & 1.44
Friday	12:30-14:00	Commission on Visual Analytics (chairs: Anthony Robinson, Arzu Çöltekin)	Room 1.61
Tuesday	12:40-14:30	Working Group on Digital Transformation of National Mapping Agencies (chair: Bin Jiang, Juha Oksanen)	Room 1.62
Monday	12:40-14:30	Working Group on Ethics in Cartography (chair: Aileen Buckley)	Room 2.44 & 2.45
Wednesday	12:40-14:30	Working Group on the Body of Knowledge (chair: Terje Midtbø)	Auditorium 2

# Daily Overview

## Sunday, 13 August 2023

<b>09:00-17:30</b>	<b>19th General Assembly of the International Cartographic Association (chair: Tim Trainor)</b>	<b>Hotel Sky</b>
<b>13:00-18:00</b>	<b>Registration</b>	<b>Registration area</b>
<b>18:30-21:00</b>	<b>Opening Ceremony (chair: Morena Letsosa)</b>	<b>Auditorium 1</b>
	Entertainment: I am African Dance & Poetry by 34/18 Youth Dance Company	
	Welcome by Morena Letsosa, President of the ICC 2023 Local Organizing Committee	
	Welcome by Dr Sepo Hachigonta, Acting Executive Director: Strategic Partnerships, National Research Foundation of South Africa,	
	Welcome and Address by Tim Trainor, President of the International Cartographic Association (ICA)	
	Messages of Goodwill from the Presidents of the ICA Sister Societies	
	Keynote 'Maps for a just climate transition' by Prof Barend Erasmus, Dean of the Faculty of Natural and Agricultural Sciences, University of Pretoria	
	Entertainment: South African Youth Choir	
	Address by the Deputy Mayor of Cape Town: Alderman Eddie Andrews	
	Introduction to the Guest of Honour by M Ramasodi	
	Address and official opening of the ICC 2023 by the Guest of Honour, Minister Angela Thokozile Didiza, Minister of Agriculture, Land Reform and Rural Development	
	Entertainment: African Poet/Storyteller by Malika Ndlovu	
	Closing Remarks by Morena Letsosa, President of the ICC 2023 Local Organizing Committee	



# Monday, 14 August 2023

<b>08:00-09:00</b>	<b>4</b>	<b>Registration</b>	<b>Registration area</b>
09:00-10:00	5A	Cartography in early warning and crisis management	Auditorium 2
	5B	Geospatial data, analysis and mapping for SDGs	Room 1.41 & 1.42
	5C	Maps for sport and leisure activities	Room 1.63 & 1.64
	5D	Geospatial analysis and modelling	Room 1.43 & 1.44
	5E	Cognitive issues in geographic information visualization	Room 1.61
	5F	Theoretical cartography	Room 1.62
<b>10:00-10:30</b>	<b>6</b>	<b>Break</b>	
10:30-11:10	7	Keynote presentation: Georg Gartner	Auditorium 2
11:20-12:40	8A	User Experience Design for Mobile Cartography	Auditorium 2
	8B	Geospatial analysis and modelling	Room 1.41 & 1.42
	8C	Geospatial semantics	Room 1.63 & 1.64
	8D	Mapping agencies, geospatial data, analysis and mapping for SDGs	Room 1.43 & 1.44
	8E	Cognitive issues in geographic information visualization	Room 1.61
	8F	Art and cartography	Room 1.62
	8G	Department of Forestry, Fisheries and the Environment Seminar	Room 2.44 & 2.45
12:40-14:30	9A	Meeting: Commission on Marine Cartography	Auditorium 2
	9B	Meeting: Commission on Atlases	Room 1.41 & 1.42
	9C	Meeting: Commission on Cartographic Heritage into the Digital	Room 1.63 & 1.64
	9D	Meeting: Commission on SDI and Standards	Room 1.43 & 1.44
	9E	Meeting: Commission on Cartography in Early Warning and Crisis Management	Room 1.61
	9F	Meeting: Commission on Cognitive Issues in Geographic Information Visualization	Room 1.62
	9G	Meeting: Working Group on Ethics in Cartography	Room 2.44 & 2.45
<b>12:40-14:30</b>	<b>9H</b>	<b>Break</b>	
14:30-15:30	10A	Geospatial analysis and modelling	Auditorium 2
	10B	Mountain cartography	Room 1.41 & 1.42
	10C	Open data for cartography and GIScience	Room 1.63 & 1.64
	10D	Toponymy	Room 1.43 & 1.44
	10E	Cognitive issues in geographic information visualization	Room 1.61
	10F	Geospatial data, analysis and mapping for SDGs	Room 1.62
	10G	Esri Seminar: Evolving Mapping - Part 1	Room 2.44 & 2.45
<b>15:30-16:00</b>	<b>11</b>	<b>Break</b>	
16:00-17:00	12A	Geospatial analysis and modelling	Auditorium 2
	12B	Crowdsourcing in cartography and GIScience	Room 1.41 & 1.42
	12C	Map design	Room 1.63 & 1.64
	12D	UN GGIM IGIF implementations	Room 1.43 & 1.44
	12E	Cognitive issues in geographic information visualization	Room 1.61
	12F	Cartography in early warning and crisis management	Room 1.62
	12G	Esri Seminar: Evolving Mapping - Part 2 (ends 17:30)	Room 2.44 & 2.45
<b>17:30-21:00</b>	<b>13</b>	<b>Reception cocktail</b>	<b>Exhibition area</b>

## Tuesday, 15 August 2023

<b>08:00-09:00</b>	<b>14</b>	<b>Registration</b>	<b>Registration area</b>
09:00-10:00	15A	Ethics in cartography and GIScience	Auditorium 2
	15B	History of Cartography	Room 1.41 & 1.42
	15C	Geospatial analysis and modelling	Room 1.63 & 1.64
	15D	Geospatial data, analysis and mapping for service delivery	Room 1.43 & 1.44
	15E	Indoor cartography	Room 1.61
	15F	Open data for cartography and GIScience	Room 1.62
	15G	Morning Posters A	Room 2.41 & 2.42
	15H	CSI Seminar: Industry participation in global infrastructure	Room 2.44 & 2.45
<b>10:00-10:30</b>	<b>16</b>	<b>Break</b>	
10:30-11:10	17	Keynote presentation: Greg Scott	Auditorium 2
11:20-12:40	18A	Atlases	Auditorium 2
	18B	Generalisation and multiple representation	Room 1.41 & 1.42
	18C	Cartography and GIScience for climate change	Room 1.63 & 1.64
	18D	Augmented, virtual and mixed reality in cartography	Room 1.43 & 1.44
	18E	Ethics in cartography and GIScience	Room 1.61
	18F	Geospatial data, analysis and mapping for SDGs	Room 1.62
	18G	Morning Posters B	Room 2.41 & 2.42
	18H	Department of Forestry, Fisheries and the Environment Seminar	Room 2.44 & 2.45
12:40-14:30	19A	Meeting: Commission on Location Based Services	Auditorium 2
	19B	Meeting: Commission on Generalisation and Multiple Representation	Room 1.41 & 1.42
	19C	Meeting: Commission on Mountain Cartography	Room 1.63 & 1.64
	19D	Meeting: Commission on Geospatial Semantics	Room 1.43 & 1.44
	19E	Meeting: Commission on the History of Cartography	Room 1.61
	19F	Meeting: Working Group on Digital Transformation of National Mapping Agencies	Room 1.62
	19G	Young Cartographers Lunch & ICA Scholarship Awards <i>(by invitation only)</i>	
<b>12:40-14:30</b>	<b>19H</b>	<b>Break</b>	
14:30-15:30	20A	Atlases	Auditorium 2
	20B	Beyond SDIs towards the future geospatial ecosystem	Room 1.41 & 1.42
	20C	Geospatial analysis and modelling	Room 1.63 & 1.64
	20D	Education and training	Room 1.43 & 1.44
	20E	Cartographic heritage into the digital	Room 1.61
	20F	Sensor-driven mapping	Room 1.62
	20G	Afternoon Posters A	Room 2.41 & 2.42
	20H	SANSA Seminar	Room 2.44 & 2.45
<b>15:30-16:00</b>	<b>21</b>	<b>Break</b>	
16:00-17:00	22A	Geospatial data, analysis and mapping for service delivery	Auditorium 2
	22B	SDI and standards	Room 1.41 & 1.42
	22C	History of Cartography	Room 1.63 & 1.64
	22D	Topographic mapping	Room 1.43 & 1.44
	22E	User experience	Room 1.61
	22F	Toponymy	Room 1.62
	22G	Afternoon Posters B	Room 2.41 & 2.42

# Wednesday, 16 August 2023

<b>08:00-09:00</b>	<b>23</b>	<b>Registration</b>	<b>Registration area</b>
09:00-10:00	24A	Geospatial semantics	Auditorium 2
	24B	Standardization in cartography	Room 1.41 & 1.42
	24C	Geospatial analysis and modelling	Room 1.63 & 1.64
	24D	User experience	Room 1.43 & 1.44
	24E	History of Cartography	Room 1.61
	24F	Visual analytics	Room 1.62
<b>10:00-10:30</b>	<b>25</b>	<b>Break</b>	
10:30-11:10	26	Keynote presentation: Patricia Solis	Auditorium 2
11:20-12:40	27A	Cartography and children	Auditorium 2
	27B	Education and training	Room 1.41 & 1.42
	27C	Generalisation and multiple representation	Room 1.63 & 1.64
	27D	Augmented, virtual and mixed reality in cartography	Room 1.43 & 1.44
	27E	Geospatial analysis and modelling	Room 1.61
	27F	Maps and the internet	Room 1.62
12:40-14:30	28A	Meeting: Working Group on the Body of Knowledge	Auditorium 2
	28B	Meeting: Commission on Education and Training	Room 1.41 & 1.42
	28C	Meeting: Commission on Map Production and Geoinformation Management	Room 1.63 & 1.64
	28D	Meeting: Commission on Maps and Graphics for Blind and Partially Sighted People	Room 1.43 & 1.44
	28E	Meeting: Advisory Board of the International Cartographic Journal	Room 1.61
	28F	Meeting: Next Generation Cartography	Room 1.62
<b>12:40-14:30</b>	<b>28G</b>	<b>Break</b>	
14:30-15:30	29A	Art and cartography	Auditorium 2
	29B	Map design	Room 1.41 & 1.42
	29C	Cognitive issues in geographic information visualization	Room 1.63 & 1.64
	29D	Education and training	Room 1.43 & 1.44
	29E	Cartographic heritage into the digital	Room 1.61
	29F	Crowdsourcing in cartography and GIScience	Room 1.62
<b>15:30-16:00</b>	<b>30</b>	<b>Break</b>	
16:00-17:00	31A	Earth observation and cartography	Auditorium 2
	31B	Location based services	Room 1.41 & 1.42
	31C	Map design	Room 1.63 & 1.64
	31D	Marine cartography	Room 1.43 & 1.44
	31E	Participatory mapping	Room 1.61
	31F	Geospatial analysis and modelling	Room 1.62

## Thursday, 17 August 2023

<b>08:00-09:00</b>	<b>32</b>	<b>Registration</b>	<b>Registration area</b>
09:00-10:00	33A	Cartography and children	Auditorium 2
	33B	Earth observation and cartography	Room 1.41 & 1.42
	33C	Geospatial analysis and modelling	Room 1.63 & 1.64
	33D	Open source geospatial technologies	Room 1.43 & 1.44
	33E	User experience	Room 1.61
	33F	Geospatial data and software	Room 1.62
<b>10:00-10:30</b>	<b>34</b>	<b>Break</b>	
10:30-11:10	35	Keynote presentation: Pali Lehohla	Auditorium 2
11:20-12:40	36A	Cartography in early warning and crisis management	Auditorium 2
	36B	Earth observation and cartography	Room 1.41 & 1.42
	36C	Education and training	Room 1.63 & 1.64
	36D	Augmented, virtual and mixed reality in cartography	Room 1.43 & 1.44
	36E	Map design	Room 1.61
	36F	Crowdsourcing in cartography and GIScience	Room 1.62
12:40-14:30	37A	Meeting: Commission on Art and Cartography	Auditorium 2
	37B	Meeting: Commission on Cartography and Children	Room 1.41 & 1.42
	37C	Meeting: Commission on Open Source Geospatial Technologies	Room 1.63 & 1.64
	37E	Meeting: Commission on Geospatial Analysis and Modeling	Room 1.61
	37F	ICA World Cartographic Forum	Room 1.62
	37G	Lunch for the ICA Executive (by invitation only)	
<b>12:40-14:30</b>	<b>37H</b>	<b>Break</b>	
14:30-15:30	38A	Cartography with data from unmanned aerial vehicles	Auditorium 2
	38B	Maps and graphics for blind and partially sighted people	Room 1.41 & 1.42
	38C	Open data for cartography and GIScience	Room 1.63 & 1.64
	38D	User experience	Room 1.43 & 1.44
	38E	Cartographic heritage into the digital	Room 1.61
	38F	Earth observation and cartography	Room 1.62
<b>15:30-16:00</b>	<b>39</b>	<b>Break</b>	
16:00-17:00	40A	Earth observation and cartography	Auditorium 2
	40B	Geospatial semantics	Room 1.41 & 1.42
	40C	Maps and graphics for blind and partially sighted people	Room 1.63 & 1.64
	40D	User experience	Room 1.43 & 1.44
	40E	Cartography and children	Room 1.61
	40F	Geospatial data in different applications	Room 1.62
<b>18:30-22:00</b>	<b>41</b>	<b>Conference Dinner (separate registration)</b> <i>Dress code: Smart Casual</i>	<b>GOLD restaurant</b> <i>(not at the CTICC)</i>

## Friday, 18 August 2023

<b>08:00-09:00</b>	<b>42</b>	<b>Registration</b>		<b>Registration area</b>
09:00-10:00	43A	Map design	Claudia Robbi Sluter	Auditorium 2
	43B	Earth observation and cartography	Matthew Rice	Room 1.41 & 1.42
	43C	Maps and graphics for blind and partially sighted people	Marieke Kuijer	Room 1.63 & 1.64
	43D	User experience	Arzu Çöltekin	Room 1.43 & 1.44
	43E	Digital twins	Peter Newmarch	Room 1.61
09:00-12:30	43G	19th General Assembly of the International Cartographic Association	Tim Trainor	Hotel Sky
<b>10:00-10:30</b>	<b>44</b>	<b>Break</b>		
10:30-12:30	45A	Cartography in early warning and crisis management	Milan Konečný	Auditorium 2
	45B	Maps for mobile devices	Terence Turnbull	Room 1.41 & 1.42
	45C	Cartography & GIScience for climate change	Anne Ruas	Room 1.63 & 1.64
	45D	Cartographic communication, education and training	Sulette van der Merwe	Room 1.43 & 1.44
	45E	Generalisation and multiple representation	Timofey Samsonov	Room 1.61
12:30-14:00	46A	Meeting: Commission on Topographic Mapping	Alexander Kent	Auditorium 2
	46B	Meeting: Commission on Toponymy (ICA-IGU joint commission)	Peter Jordan	Room 1.41 & 1.42
	46C	Meeting: Commission on Ubiquitous Mapping	Yoshiki Wakabayashi	Room 1.63 & 1.64
	46D	Meeting: Commission on User Experience	Robert Roth and Luciene Delazari	Room 1.43 & 1.44
	46E	Meeting: Commission on Visual Analytics	Anthony Robinson and Arzu Çöltekin	Room 1.61
	46F	Meeting: Commission on Sensor-driven Mapping	Jonathan Li	Room 1.62
<b>12:30-14:00</b>	<b>46G</b>	<b>Break</b>		
<b>14:00-16:00</b>	<b>47</b>	<b>Closing Session</b>	<b>Tim Trainor</b>	<b>Auditorium 2</b>

# Presentation schedule

## Monday, 14 August 2023

09:00-10:00	Session 5A: Cartography in early warning and crisis management (chair: Jie Shen) Auditorium 2	
09:00-09:20	7172	Jiping Liu, Yong Wang, Shenghua Xu, Xianghong Che and Milan Konecny. A few thoughts on the integrated space-air-ground emergency rescue communication command in China
09:20-09:40	3554	<u>Jie Shen</u> , Kunihiro Ishii, Shudong Liu, Anbo Li, Bin Hu, Meizhen Wang, Teng Zhong, Wei Han, Shuai Hong and Sihui Liu. Scenario building for urban disaster management based on the integration of CIM and Big data- The progress of CJISTCP
09:40-10:00	4072	<u>Christophe Lienert</u> , Franziska Angly Bieri, Wolfgang Ruf, Mathias Gross and Mathias Zesiger. From Documentation to Response – the operational Swiss Rapid Mapping Service for Natural Hazard and Crisis Management
09:00-10:00	Session 5B: Geospatial data, analysis and mapping for SDGs (chair: Silvana Camboim) Room 1.41 & 1.42	
09:00-09:20	972	<u>Aster Deneke Yilma</u> and Andre Nonguierma. Availability of Fundamental Geospatial Datasets for monitoring the Sustainable Development Goals in Africa
09:20-09:40	6526	<u>Silvana Camboim</u> and Maria Brovelli. Open and Collaborative Initiatives for tackling the Geospatial Data Inequalities in achieving the SDGs
09:40-10:00	3105	<u>Nicolene Fourie</u> . Public bodies compliance to PAI and SDI Act: An enabler for geospatial information freedom
09:00-10:00	Session 5C: Maps for sport and leisure activities (chair: Laszlo Zentai) Room 1.63 & 1.64	
09:00-09:20	3028	<u>Dušan Petrovič</u> , Klemen Kozmus Trajkovski and Dejan Grigillo. Use of LiDAR drone data for O-mapping and change detection in mountainous areas
09:20-09:40	5307	<u>László Zentai</u> . History of orienteering maps: in the light of the evolution of survey and reproduction techniques
09:40-10:00	6402	Donat Buechel and <u>Tumasch Reichenbacher</u> . The visual complexity of bike maps
09:00-10:00	Session 5D: Geospatial analysis and modelling (chair: Gina Weir-Smith) Room 1.43 & 1.44	
09:00-09:20	398	Yamikani Phiri and <u>Kondwani Munthali</u> . Primary Health Care Accessibility in Zomba, Malawi: A Spatial Modelling Approach
09:20-09:40	5996	<u>Tholang Mokhele</u> . Geographically weighted regression modelling using Poisson distribution for factors influencing good SPH at district level, South Africa
09:40-10:00	6985	<u>Lauren Williams</u> . A GIS-based technology response to an avian influenza outbreak in South Africa
09:00-10:00	Session 5E: Cognitive issues in geographic information visualization (chair: Stanislav Popelka) Room 1.61	
09:00-09:20	1334	Marcio Schmidt, <u>André Mendonça</u> and Luciene Delazari. Cognitive differences in navigation using allocentric cameras
09:20-09:40	6166	<u>Nianhua Liu</u> , Chuan Chen, Shengkai Wang, Rostislav Netek, Stanislav Popelka and Liqiu Meng. Using Eye-tracking to Evaluate Visual Behaviours on GIS-Enhanced Football Animations
09:40-10:00	2191	<u>Arzu Çöltekin</u> , Amy L. Griffin, Rahel Ganarin, Victoria Rautenbach, Serena Coetzee and Azile Mdeleleni. What moderates the terrain reversal effect in shaded relief maps?
09:00-10:00	Session 5F: Theoretical cartography (chair: Dennis Edler) Room 1.62	
09:00-09:20	3004	Tengiz Gordeziani, Zurab Laoshvili, <u>Gocha Gudzuadze</u> , Tedo Gorgodze, Manana Sharashenidze, Gocha Jincharadze and Mariam Gagoshashvili. Theoretical cartography structure, connections, functions

09:20-09:40	7752	<a href="#">Antoni Moore</a> . From the abstract to maps and landscapes: a metageovisualisation perspective
09:40-10:00	8098	<a href="#">Dennis Edler</a> and Olaf Kühne. Post-Critical Cartography and Deviance: Overcoming Dysfunctional Aspects of Critical Cartography?!
10:00-10:30	Session 6: Break	
10:30-11:10	Session 7: Keynote presentation: Georg Gartner (chair: Tim Trainor) Auditorium 2	
10:30-11:10	<a href="#">Georg Gartner</a> . Revisiting the relevance of cartography	
11:20-12:40	Session 8A: User Experience Design for MobileCartography (chair: Robert Roth) Auditorium 2	
11:20-11:40	2699	<a href="#">Robert E. Roth</a> , Amy L. Griffin and Haosheng Huang. User Experience Design for Mobile Cartography: Update on a ICA Joint Commission Research Agenda
11:40-12:00	2905	<a href="#">Amy L. Griffin</a> , Tumasch Reichenbacher, Hua Liao, Wangshu Wang and Yinghui Cao. Cognitive issues of mobile map design and use: A collaborative research agenda
12:00-12:20	6664	<a href="#">Robert E. Roth</a> , Arzu Çoltekin, Luciene Delazari, Bradley Denney, André Mendonça, Jie Shen, Zdeněk Stachoň and Mingguang Wu. Designing maps & visualizations for mobile devices: A collaborative research agenda
12:20-12:40	9370	<a href="#">Haosheng Huang</a> , Yi Cheng, Weihua Dong, Georg Gartner, Jukka Krisp and Liqiu Meng. Data Modeling and Processing in Location Based Services: A Collaborative Research Agenda
11:20-12:40	Session 8B: Geospatial analysis and modelling (chair: Stephanus Minnie) Room 1.41 & 1.42	
11:20-11:40	4566	<a href="#">Morteza Karimzadeh</a> , Braden Hance, Alex Posen, Rita Sherwood and Tiger Su. Characterizing Spatial Accessibility of COVID-19 Testing and Vaccination Sites using Dasymetric Mapping and GIS
11:40-12:00	6844	<a href="#">Terisha Pillay</a> , Victoria Rautenbach and Adedayo Adeleke. Mapping South African Covid-19 Vaccine Opinions
12:00-12:20	9494	<a href="#">Binbin Lin</a> . Mapping the temporally evolved geographic disparities of public perceptions of COVID-19 through social media
12:20-12:40	2733	Lei Zou, Wanhe Li, Mingzheng Yang, <a href="#">Binbin Lin</a> and Joynal Abedin. The impact of social isolation on sleep disturbances – evidence from geospatial big data during COVID-19
11:20-12:40	Session 8C: Geospatial semantics (chair: Dalia Varanka) Room 1.63 & 1.64	
11:20-11:40	6064	<a href="#">Liqiu Meng</a> , Temenoujka Bandrova, Terje Midtbø and Vít Voženílek. Three fuzzy concepts and their implications for cartography
11:40-12:00	8382	Ana-Maria Raimond, Mattia Bunel, Catherine Domingues, Cécile Duchêne, <a href="#">Laurence Jolivet</a> , Sébastien Mustière, Marie-Dominique Van Damme, Olivier Favre and Véronique Gendner. A lightweight ontology for landmarks to assist rescue in mountainous areas
12:00-12:20	9985	Fabíola Andrade Souza, Leonardo Scharth Loureiro Silva, Adriana Alexandria Machado, Sabrina de Andrade Oliveira Santos, Érika Do Carmo Cerqueira and <a href="#">Silvana Philippi Camboim</a> . From Conceptual Models to Ontologies: Achieving Knowledge Management in SDIs
12:20-12:40	9786	<a href="#">Dalia Varanka</a> . Making Machine Map Meaning: Notes on Cartographic 'Absence' in Semantic Context
11:20-12:40	Session 8D: Mapping agencies, geospatial data, analysis and mapping for SDGs (chair: Menno-Jan Kraak) Room 1.43 & 1.44	
11:20-11:40	1267	<a href="#">Aster Deneke Yilma</a> and Andre Nonguierma. Geospatial Data Taxonomy for the Sustainable Development Goals in Africa
11:40-12:00	3104	Alicja Kulka, <a href="#">Anna Bober</a> , Marcin Lebiecki and Anna Makowska. Tasks and challenges of the Head Office of Geodesy and Cartography in the area of developing topographic maps in 1:25,000 scale

12:00-12:20	6241	<u>Nouri Sabo</u> . AI-based on-demand mapping: an alternative in response to ever-growing mapping agencies' challenges
12:20-12:40	1185	<u>Guillaume Le Sourd</u> and Britta Ricker. Mapping the Sustainable Development Goals: Understanding of our world and its challenges through maps
11:20-12:40	Session 8E: Cognitive issues in geographic information visualization (chair: Frank Dickmann) Room 1.61	
11:20-11:40	2382	Ninon Jaeger, Merve Keskin and <u>Pyry Kettunen</u> . Automation of the visualisation of eye-tracking data with animated heatmaps
11:40-12:00	1098	<u>Michaela Vojtechovska</u> and Stanislav Popelka. GazePlotter – tool for eye movement sequences visualization
12:00-12:20	5373	<u>Francis Harvey</u> , Marta Kuzma, Izabela Gołębiowska and Paulina Waclawik. Map Use Challenges in the Digital Humanities: Preliminary Insights through Eye-Tracking Analysis
12:20-12:40	4878	<u>Annika Korte</u> , Julian Keil and Frank Dickmann. Investigating the relation of path integration performance and cartographic cues inspired by grid cell properties
11:20-12:40	Session 8F: Art and cartography (chair: Taien Ng-Chan) Room 1.62	
11:20-11:40	3677	<u>Romola Thumbadoo</u> , Fraser Taylor and Alexander Wolodtschenko. Storytelling, Visual and Cognitive Mapping and Photoatlassing of Indigenous Elder William Commanda's Canoe Journey: Art, Craft, Motion, Experience, Knowledge and Wisdom
11:40-12:00	8101	<u>Josef Münzberger</u> and Petra Justová. Dante's Inferno as an ArcGIS StoryMap
11:00-12:20	9543	<u>Andiswa Koya</u> and Andiswa Koya. The story of Autshumato as told with remote sensing and GIS.
12:40-14:30	Break	
14:30-15:30	Session 10A: Geospatial analysis and modelling (chair: Paola Zamperlin) Auditorium 2	
14:30-14:50	1437	<u>Stefan de Bruin</u> , Eva Louw and Christoff Krogscheepers. A GIS Approach To Measuring Public Transport Travel Delay On Higher Order Roads In The City Of Cape Town
14:50-15:10	4257	<u>Youngok Kang</u> and Jiyeon Kim. Developing deep learning model for predicting perceived walkability using street view images
15:10-15:30	7104	<u>Jiyoon Lee</u> , Youngok Kang, Jiyeon Kim and Jiyoun Park. Measuring human perceptions of urban landscape using machine learning: factor affecting perceived walkability of street-view image
14:30-15:30	Session 10B: Mountain cartography (chair: Dusan Petrovic) Room 1.41 & 1.42	
14:30-14:50	3901	<u>François Lecordix</u> . Innovative solution for relief printing without limiting heights
14:50-15:10	4394	<u>Gene Trantham</u> . Selective Terrain Smoothing
15:10-15:30	8678	<u>Patrick Kennelly</u> . Principal Components and Relief Shading
14:30-15:30	Session 10C: Open data for cartography and GIScience (chair: Dirk Burghardt) Room 1.63 & 1.64	
14:30-14:50	4330	Mathias Gröbe, Nikolas Prechtel, <u>Dirk Burghardt</u> and Benjamin Schröter. #mappingmtushba – data collection and automated map generation
14:50-15:10	566	<u>Zihan Liu</u> , Peng Luo, Christian E. Murphy and Liqiu Meng. The Potential of VGI and Traffic Flow Generation Model for Solving the Traffic Sensor Location Problem
15:10-15:30	9896	<u>Claudia Robbi Sluter</u> , Luana Daniela da Silva Peres, João Igor Oliveira Dorneles, Luiz Felipe Velho and Marildo Guerini Filho. Using open and collaborative data to improve the Brazilian topographic mapping in protected areas
14:30-15:30	Session 10D: Toponymy (chair: Peter Jordan) Room 1.43 & 1.44	
14:30-14:50	2789	<u>Peter Jordan</u> . Reasons for the emergence of exonyms



14:50-15:10	7761	Beatriz Cristina Pereira de Souza Pinto, Graciosa Rainha Moreira, <a href="#">Viviane Barbosa Diniz</a> and Ana Cristina da Rocha Berenger Resende. Compatibilization of Geographical Names used in the Brazilian Official Mapping
15:10-15:30	8893	<a href="#">Zhaoxu Sui</a> and Carolyn Fish. Endonyms or Exonyms: How map purpose, data source, and map language impact place naming on maps
14:30-15:30	Session 10E: Cognitive issues in geographic information visualization (chair: Vit Vozenilek) Room 1.61	
14:30-14:50	5489	<a href="#">Izabela Gołebowska</a> and Arzu Çöltekin. Over the rainbow: An in-depth examination of the pervasiveness of the rainbow colour scheme
14:50-15:10	5830	<a href="#">Florian Ledermann</a> . Minimum Dimensions for Cartographic Symbolology: Towards a Comprehensive Definition and Assessment Method
15:10-15:30	5293	<a href="#">Sam Arundel</a> , Gaurav Sinha, Wenwen Li, David P. Martin, Kevin G. McKeehan and Philip Thiem. Historical maps inform landform cognition in machine learning
14:30-15:30	Session 10F: Geospatial data, analysis and mapping for SDGs (chair: Britta Ricker) Room 1.62	
14:30-14:50	568	<a href="#">Benjamin Würzler</a> , Marc Massilge, Andreas Weiner and Joachim Bobrich. German Grid Cell Database: From Spatial to Statistics
14:50-15:10	7238	<a href="#">Britta Ricker</a> and Menno Jan Kraak. Cartography and Sustainable Development: Developing an Agenda
15:10-15:30	5952	<a href="#">Guillaume Le Sourd</a> , Britta Ricker and Mina Lee. Sub-national mapping for a Sustainable World: data availability and dis/aggregation
14:30 - 17:30	Session 10G: Esri Seminar: Evolving Mapping Room 2.44 & 2.45	
15:30-16:00	Break	
16:00-17:00	Session 12A: Geospatial analysis and modelling (chair: Adam Iwaniak) Auditorium 2	
16:00-16:20	3389	<a href="#">Hui Zhu</a> , Xin Yang and Guoan Tang. A new 3D visible space index for evaluating urban openness
16:20-16:40	9658	<a href="#">Viktorija Filippova</a> and Moisei Zakharov. Network Modeling Of Settlements' Interaction For Sustainable Development Of Remote Territories
16:40-17:00	6016	<a href="#">Adam Iwaniak</a> , Marek Maziarz and Iwona Kaczmarek. Spatial analysis in GeoAI with the use of graph neural networks: Quality of life prediction in urban areas case
16:00-17:00	Session 12B: Crowdsourcing in cartography and GIScience (chair: Eric Delmelle) Room 1.41 & 1.42	
16:00-16:20	4719	<a href="#">Leonardo Scharth Loureiro Silva</a> , Silvana Philippi Camboim and Kauê de Moraes Vestena. Collaboratively Updating National Cartography: An Automated Tool for Integrating OpenStreetMap Data into Topographic Mapping in Brazil
16:20-16:40	4660	<a href="#">Lopang Maphale</a> , Keorapetse Moroka, Mooketsi Segobye and Bagadzi Michael Manisa. Updating a Topographical Line Map of Gaborone Broadhurst Suburb with the Help of Digital Globe Orthorectified Mosaic and Crowdsourcing
16:40-17:00	8724	<a href="#">John Haumann</a> , Matthew Rice and Toby Williams. Improving Mobile Positioning Accuracy Within An Image-Based Hybrid Geo-crowdsourcing System
16:00-17:00	Session 12C: Map design (chair: Ian Muehlenhaus) Room 1.63 & 1.64	
16:00-16:20	4037	<a href="#">Radek Barvir</a> and Martin Holub. Online value-scale generator for proportional symbol maps
16:20-16:40	1513	<a href="#">Aleksandra Stanczak</a> and Antoni Moore. Community space-time flow expression
16:40-17:00	4593	<a href="#">Dariusz Gotlib</a> and Hubert Świech. Building Accessibility Maps: Cartographic Solutions to Assist Mobility of People with Disabilities

16:00-17:00	Session 12D: UN GGIM IGIF implementations (chair: Anja Hopfstock) Room 1.43 & 1.44	
16:00-16:20	5393	<a href="#">Lindy-Anne Siebritz</a> and Serena Coetzee. Building the case for a bottom-up approach to SDI stakeholder collaboration – experiences from South Africa
16:20-16:40	7643	<a href="#">Lassi Lehto</a> , Jaakko Kähkönen, Juha Oksanen and Panu Muhli. Use Case Driven Dynamic Integration of Cross-Domain Content
16:40-17:00	3998	Gareth Muthumuni and <a href="#">Morena Letsosa</a> . Roadmap From A Traditional Spatial Data Infrastructure (SDI) To An Integrated Geospatial Information Framework (IGIF)
16:00-17:00	Session 12E: Cognitive issues in geographic information visualization (chair: Pyry Kettunen) Room 1.61	
16:00-16:20	5960	<a href="#">Nianhua Liu</a> , Bing Liu, Yu Feng and Liqiu Meng. Comparative User Experiments in Cognitive Pitfalls of Climate Change Information
16:20-16:40	3261	<a href="#">Merve Keskin</a> , Mikko Rönneberg and Pyry Kettunen. The effect of dominant background color and traffic subnetwork on the readability of topographic maps: An eye tracking study
16:40-17:00	330	<a href="#">Paweł Cybulski</a> and Vassilios Krassanakis. Examining the distribution of motion velocity during visual search towards designing effective dynamic point symbols for quantitative mapping
16:00-17:00	Session 12F: Cartography in early warning and crisis management (chair: Christophe Lienert) Room 1.62	
16:00-16:20	5228	<a href="#">Jack Swab</a> . Changing Desires and Aims in Public Health Mapping in the United States, 1920-2020
16:20-16:40	819	<a href="#">James Todd</a> , Keiji Yano and Kazumasa Hanaoka. A dashboard application to explore population distribution derived from GPS location data during the COVID-19 pandemic in Kyoto, Japan
16:40-17:00	6742	Brendah Nagula and <a href="#">Ivan Bamweyana</a> . Spatial Planning as an Explanatory Factor in the Spatial Distribution of COVID-19 in Kampala City

## Tuesday, 15 August 2023

09:00-10:00	Session 15A: Ethics in cartography and GIScience (chair: Aileen Buckley) Auditorium 2	
09:00-09:20	6679	<a href="#">Ian Muehlenhaus</a> . Confronting the quantum: do maps visualize or actually create spatial truths and realities?
09:20-09:40	318	Nat Case. A multiple-constituency approach to ethics in cartography
09:40-10:00	3576	Timothy Prestby. In Maps We Trust
09:00-10:00	Session 15B: History of Cartography (chair: Philippe De Maeyer) Room 1.41 & 1.42	
09:00-09:20	7703	<a href="#">Imre Demhardt</a> . Unveiling Frozen Lands and Seas: Nineteenth Century Mapping of the Arctic
09:20-09:40	8157	Tome Marelić, Josip Faričić and Lena Mirosevic. Magnetic declination on the early modern cartographic representations of the Adriatic Sea
09:40-10:00	8196	Francis Harvey. Cartographic meaning made in use: Reconsiderations of Jacques Bertin's Sémiologie Graphique as a translation
09:00-10:00	Session 15C: Geospatial analysis and modelling (chair: Michael Grenfell) Room 1.63 & 1.64	
09:00-09:20	1632	<a href="#">Yoliswa Mkhize</a> , Sabelo Madonsela, Moses Cho, Basanda Nondlazi, Russell Main and Abel Ramoelo. Mapping Weed Infestation in Maize Fields Using Sentinel-2 data
09:20-09:40	8125	Edina Hajdú, Krisztina Irás and Márton Pál. Geosite database of the High Gerecse Hills (Hungary): with cartographic and GIS-based methodologies
09:00-10:00	Session 15D: Geospatial data, analysis and mapping for service delivery (chair: Koech Cheruiyot) Room 1.43 & 1.44	

09:00-09:20	8449	<a href="#">Azile Mdleleni</a> and Serena Coetzee. The challenge of co-operative governance of addresses and address data in Mankweng and surroundings in Limpopo, South Africa
09:20-09:40	5820	Lyndsey Norberg, Matt Rice and Nathan Burtch. Mapping Housing Dynamics and Affordability Solutions in Fairfax City, Virginia
09:40-10:00	6850	Koech Cheruiyot and Samy Katumba. Mapping the intensity of ward-level barriers to youth's participation in local development planning in Gauteng province, South Africa
09:00-10:00	Session 15E: Indoor cartography (chair: Liqiu Meng) Room 1.61	
09:00-09:20	617	Dariusz Gotlib, <a href="#">Jakub Łobodecki</a> and Miłosz Gnat. Concept and realisation of the laboratory of indoor cartography with the support of computer game environments
09:20-09:40	4168	Shengkai Wang, Bing Liu, Chenkun Zhang, Nianhua Liu and Liqiu Meng. Visualizing indoor layout for spatial learning using Mixed Reality-based X-ray vision
09:40-10:00	9350	Jingyi Zhou, Robert Weibel, Cheng Fu, Zhiyong Zhou, Litao Zhu and Jie Shen. Indoor navigation map design based on the analysis of space characteristics
09:00-10:00	Session 15F: Open data for cartography and GIScience (chair: Florian Ledermann) Room 1.62	
09:00-09:20	906	Beom Sae Shawn Kim, Reza Safarzadeh Ramhormozi and <a href="#">Xin Wang</a> . Quality Assessment of the OpenStreetMap Road Network in Calgary, Alberta
09:40-10:00	3102	Ester Scheck, Andrea Binn, Marian Dörk and Florian Ledermann. A Contemporary Nolli Map: Using OpenStreetMap Data to Represent Urban Public Spaces
09:00-10:00	Session 15G: Morning Posters A Room 2.41 & 2.42	
	5583	Ayana Medeiros, Gabriella Vilhagra and <a href="#">Paula Juliasz</a> . Teaching cartography from the universe of Black Panther
	985	Tamara Vereshchaka, <a href="#">Anna Ivanova</a> and Alexey Stepanchenko. Specialized topographic maps: types, content, methods and technologies of creation
	5695	<a href="#">János Jeney</a> . Bilingual road signs in Dunaszerdahely
	7584	<a href="#">Marian Rybansky</a> , Martin Hubacek, Jaromir Capek, Vladimir Kovarik, Filip Dohnal and Jan Mazal. Terrain passability mapping in the Czech Republic
	5872	<a href="#">Naeema Alhosani</a> . Pictorial Artifacts and Cartographic Imagination: Melding the Chasm between Time and Space
	4311	<a href="#">Felleng Letlaila</a> , Nisa Ayob, Ncobile Nkosi and Lizaan de Necker. The historic distribution of schistosomiasis transmitting snails in Mbombela and Nkomazi local municipalities
10:00-10:30	Break	
10:30-11:10	Session 17: Keynote presentation: Greg Scott (chair: Mimi Chauke) Auditorium 2	
10:30-11:10	<a href="#">Greg Scott</a> . The UN-IGIF in Action: Opportunities for Cartography and GIScience	
11:20-12:40	Session 18A: Atlases (chair: Eric Losang) Auditorium 2	
11:20-11:40	3490	<a href="#">Thomas Schulz</a> . Status and trends in atlas cartography – considerations of an atlas producer, researcher, user and collector
11:40-12:00	3765	<a href="#">Sofia Gavrilova</a> . Constructing “Russian civilization” : a critical introduction to the National Atlas of Russia (2004-2008)
12:00-12:20	4835	<a href="#">Maciej Zych</a> . The Atlas of Environment (of Poland). How to present on maps data on the environment collected by official statistics?
12:20-12:40	2594	<a href="#">Eric Losang</a> . Space, Place, Narratives – Toponym registries and atlases as resources for historical place names research

11:20-12:40	Session 18B: Generalisation and multiple representation (chair: Lawrence Stanislawski) Room 1.41 & 1.42	
11:20-11:40	5453	<a href="#">Wojciech Dawid</a> and Krzysztof Pokonieczny. Generalization of digital elevation models for military passability maps development
11:40-12:00	5377	<a href="#">Jiří Drozda</a> , Václav Talhofer and Filip Dohnal. Options for systematizing cartographic rules
12:00-12:20	4966	<a href="#">Krzysztof Pokonieczny</a> and Wojciech Dawid. The Application of Artificial Neural Networks for the generalisation of Military Passability Maps
12:20-12:40	4027	<a href="#">Rex Cammack</a> . Adjacent Point Mapping Methods: Web Mapping Approach
11:20-12:40	Session 18C: Cartography and GIScience for climate change (chair: Antoni Moore) Room 1.63 & 1.64	
11:20-11:40	7837	Kalamkas Yessimkhanova and <a href="#">Mátyás Gede</a> . Mapping climate zones change for the territory of Kazakhstan
11:40-12:00	5220	Quyen Nguyen, <a href="#">Antoni Moore</a> , Ivan Diaz-Rainey, Greg Bodeker, Simon Cox, Murray Cadzow and Paul Thorsnes. Uncertainty in Mapping Climate Change-Related Flooding Risk to Residential Property Values
12:00-12:20	3503	<a href="#">Anne Ruas</a> , Jean-Francois Girres, Abdou Guene and Valentin Clemence. Mapping the city's trajectories to cool the city and better resist heat waves
12:20-12:40	7326	<a href="#">Pia Bereuter</a> and Monika Hall. MICROHEAT Building Aggregation to estimate the potential for shared energy generation with heat pumps
11:20-12:40	Session 18D: Augmented, virtual and mixed reality in cartography (chair: Zdeněk Stachoň) Room 1.43 & 1.44	
11:20-11:40	1801	<a href="#">Alisa Pettitt</a> . Locating and Mapping Missing Cemeteries in Immersive Virtual Environments
11:40-12:00	2555	<a href="#">Henok Solomon</a> , Jan van Bever Donker and Rudy Maart. Beyond Maps - the use of Highly Immersive Visualization Environment (HIVE) technology in using VR and AR in geoscience education
12:00-12:20	4197	<a href="#">Ondřej Kvarda</a> , Zdeněk Stachoň and Jiří Chmelík. Cartographic Visualisation within Immersive Virtual Environments
12:20-12:40	9584	<a href="#">Marco Weißmann</a> , Dennis Edler, Julian Keil and Frank Dickmann. The Implementation of a Dialogue Based Interaction Tool for the Usage in Immersive Virtual Environments
11:20-12:40	Session 18E: Ethics in cartography and GIScience (chair: Georg Gartner) Room 1.61	
11:20-11:40	309	<a href="#">Georg Gartner</a> . Towards strategies for ensuring trustworthiness in cartography
11:40-12:00	5105	<a href="#">Aileen Buckley</a> . Advancing Ethics in Cartography
12:00-12:20	7911	<a href="#">Mengyi Wei</a> , Chuan Chen, Liqiu Meng and Chenyu Zuo. Detecting and Visualizing the Knowledge Structure of AI Ethics in Wikipedia Data
12:20-12:40	153	<a href="#">Chuan Chen</a> , Mengyi Wei and Liqiu Meng. Visual analysis of AI ethics cases
11:20-12:40	Session 18F: Geospatial data, analysis and mapping for SDGs (chair: Xintao Liu) Room 1.62	
11:20-11:40	8626	<a href="#">Barbara Roosen</a> and Mela Zuljevic. Atlasing Sustainable Development: A Participatory and Critical Approach to Neighbourhoods in Transition
11:40-12:00	2278	<a href="#">Salamatu Abdullahi</a> , Tijjani Garba, Abdullahi Jibrin and Victor Istifanus. Impact of mining activities on vegetation composition in pingel mining area using multi-temporal landsat images
12:00-12:20	5135	<a href="#">Samuel Osei</a> and Rethabile Witkoei. Smart Cartography in sustainable and efficient use of land
12:20-12:40	6070	<a href="#">Márton Pál</a> and Gáspár Albert. Preparing the geodiversity map of Hungary in line with the UNESCO SDGs

11:20-12:40	Session 18G: Morning Posters B Room 2.41 & 2.42	
	5559	Alvaro Pinochet-Brunetto, Betsabé Herrera and <a href="#">Jeanette Araneda</a> . The challenge of creating cartography of zones of extreme conditions; case of Chilean Antarctica
	7534	<a href="#">Lesley-Frederick Zeanecho Nake</a> . Spatial data acquisition in local Municipalities, with special references to issues and opportunities regarding spatial data acquisition
	1259	<a href="#">Janusha Singh</a> . Geospatial data, analysis and mapping for service delivery
	4828	Hassam Ali and <a href="#">Wangshu Wang</a> . A Novel Indoor Trajectory Pattern Mining Framework
	4936	<a href="#">Gina Weir-Smith</a> and Emmanuel Fundisi. The spatial nature of structural unemployment in South Africa
	5226	Kyuhui Jun, Changkyu Lee and <a href="#">Jinmu Choi</a> . Efficient Method for COVID-19 Vaccine Allocation
12:40-14:30	Break	
14:30-15:30	Session 20A: Atlases (chair: René Sieber) Auditorium 2	
14:30-14:50	113	<a href="#">René Sieber</a> and Lorenz Hurni. Archiving Printed and Digital Atlases – How to keep the «Atlas of Switzerland» available for future generations
14:50-15:10	292	<a href="#">Vit Vozenilek</a> and Veronika Lachova. Assessment of the quality of colour scales: a case study "Landscape Atlas of Czech Republic"
15:10-15:30	5762	<a href="#">Eric Losang</a> . Spatial knowledge in atlases and encyclopedias - structural commonalities and differences in the production of space.
14:30-15:30	Session 20B: Beyond SDIs towards the future geospatial ecosystem (chair: Antony Cooper) Room 1.41 & 1.42	
14:30-14:50	2906	<a href="#">Antony Cooper</a> , Serena Coetzee, Harold Moellering, Petr Rapant, Joep Crompvoets, Jan Hjelmager, Tatiana Delgado, Adam Iwaniak and Iwona Kaczmarek. A review of the ICA model of stakeholders in a spatial data infrastructure (SDI)
14:50-15:10	1573	<a href="#">Antti Jakobsson</a> . Are Data Ecosystems ready for Location Data – Case Location Innovation Hub in Finland
15:10-15:30	7754	<a href="#">Nina Polous</a> . Smart Cartography: representing complex geographical reality of 21st century
14:30-15:30	Session 20C: Geospatial analysis and modelling (chair: Jaco Kemp) Room 1.63 & 1.64	
14:30-14:50	6675	Zandré Nieuwoudt and <a href="#">Jaco Kemp</a> . A deep learning model for the recognition of depression wetland shape
14:50-15:10	4500	<a href="#">Pearl Mzobe</a> , Michael Grenfell and Nancy Job. A hydrogeomorphic approach to river characterization in the Breede River catchment, South Africa.
15:10-15:30	3548	<a href="#">Lawrence Stanislawski</a> , Pierfranco Costabile, Carmelina Costanzo, Alexander Duffy and Ethan Shavers. Enhancing U-net extraction of hydrographic features from IfSAR data in Alaska using shallow water channel depth models
14:30-15:30	Session 20D: Education and training (chair: Terje Midtbø) Room 1.43 & 1.44	
14:30-14:50	4128	<a href="#">Vânia Souza</a> . The importance of the Federal District School Atlas in the formation of the socio-spatial identity of high school students
14:50-15:10	7736	<a href="#">Holger Kumke</a> . Cartography Playground: Interactive, web-based applications to explain basic cartographic issues
15:10-15:30	9594	<a href="#">Koji Ohnishi</a> . The Role of Maps in Japanese High School Geography Textbooks
14:30-15:30	Session 20E: Cartographic heritage into the digital (chair: Mátyás Gede) Room 1.61	
14:30-14:50	2608	<a href="#">Jost Schmid</a> and René Sieber. St Gallen Globe Online

14:50-15:10	9020	<u>Carmelo Ignaccolo</u> . Exclusionary tales in Beirut's spaces of craftsmanship: Using historic cartography, archival ethnography, and oral history to map the enduring vulnerability of craftspeople
15:10-15:30	4086	<u>Zsombor Bartos-Elekes</u> . Behind the first Habsburg map of Transylvania – comparative analysis of contemporary manuscript maps
14:30-15:30	Session 20F: Sensor-driven mapping (chair: Jonathan Li) Room 1.62	
14:30-14:50	6059	<u>Xiaojun Yang</u> and Yuemeng Gao. Satellite remote sensing of COVID-19 lockdown effects upon urban ecosystems
14:50-15:10	6311	Kristie Hu, Jing Du, Xinghan Gong, Lingfei Ma and <u>Jonathan Li</u> . A Comparative Study of Semantic Segmentation Using Deep Neural Networks in a GNSS-denied Underground Parking Lot
15:10-15:30	8612	<u>Chen Xiao</u> , Zhang Xianfeng, Ren Miao, Z'Hou Bo and Feng Ziyuan. A Novel Autoencoder Based Nonlinear Adaptive Weighted Network for Hyperspectral Unmixing
14:30-15:30	Session 20G: Afternoon Posters A Room 2.41 & 2.42	
	6628	<u>Lesego Thekiso</u> . Climate variability impacts on the historical distribution of <i>B. Africanus</i> in Johannesburg Metropolitan Municipality
	8755	<u>Sergey Krylov</u> , Gleb Zagrebin, Ivan Fokin, Olga Kotova, Dmitry Mosolov and Egor Pravskiy. River basin web mapping
	5580	Nour Naaouf, Csaba Zsolt Torma and <u>Jesús Reyes</u> . Present and future climate characteristics of Syria based on CORDEX simulations
	900	<u>Bhanwar Vishvendra Raj Singh</u> , Vijai Singh Meena and Ravi Mishra. Geospatial Mapping for Rural Cartography Towards Local Sustainable Development Goals: A case study of Bombora, Bori, Sulawas, Sihad Gram Panchayat, Udaipur, India
	7459	<u>Márton Pál</u> and Edina Hajdú. Setting standards for cemetery spatial databases – a case study in the Roman Catholic Archdiocese of Eger, Hungary
	1084	<u>Bashkim Idrizi</u> . Current conditions, opportunities and deficiencies of using State Coordinate Reference System of North Macedonia from international EPSG and PROJ databases
15:30-16:00	Break	
16:00-17:00	Session 22A: Geospatial data, analysis and mapping for service delivery (chair: Samy Katumba) Auditorium 2	
16:00-16:20	4320	Charity Maphanga, <u>Samy Katumba</u> , Gregory Breetzke and Koech Cheruiyot. Examining the relationship between basic service delivery provision and dissatisfaction with the performance of local government in Gauteng (South Africa)
16:20-16:40	9208	<u>Mokgethi Motswenyane</u> , Antony K Cooper and Serena Coetzee. Assessment and Application of Land Administration Concepts to South Africa for All Forms of Land Tenure
16:40-17:00	2123	<u>Elena Martynova</u> , Sergey Shcheglov, Alexey Ustinovich and Andrey Mukhin. Commonwealth of Independent States Geoportal
16:00-17:00	Session 22B: SDI and standards (chair: Franz-Josef Behr) Room 1.41 & 1.42	
16:00-16:20	7062	<u>Franz-Josef Behr</u> . From traditional OGC Webservices to Modern Open API based Service Architectures: Introduction, Concepts and Experiences from Germany, a country in Transition
16:20-16:40	9094	<u>Gobe Hobona</u> , Scott Simmons, Joan Masó-Pau and Jérôme Jacovella-St-Louis. OGC API Standards for the Next Generation of Web Mapping
16:40-17:00	4762	<u>Alpo Turunen</u> , Jari Reini and Antti Jakobsson. Improving Interoperability of National Geospatial Services in International Context
16:00-17:00	Session 22C: History of Cartography (chair: Imre Demhardt) Room 1.63 & 1.64	

16:00-16:20	225	Beata Konopska and <a href="#">Izabela Karsznia</a> . Fifty years of Polish and world cartographic literature : bibliography compiled by Jerzy Ostrowski and Zenon Koziel
16:20-16:40	3036	<a href="#">Igor Drecki</a> . The Next Forty Years: A brief history of ICA 1984-2023
16:40-17:00	3381	<a href="#">Philippe De Maeyer</a> . The changing role of the map in Western European society over the last 250 years
16:00-17:00	Session 22D: Topographic mapping (chair: Alexander Kent) Room 1.43 & 1.44	
16:00-16:20	5693	<a href="#">Miloš Basarić</a> , Petar Vasiljev, Viktor Marković and Dejan Đorđević. Automatic Extraction and Placement of Building Point Vector Data from Aerial Imagery for the 1: 25 000 Topographic Map Production
16:20-16:40	1538	<a href="#">Andiswa Koya</a> and Andiswa Koya. The use of satellite imagery for the update of 1: 250 000 maps
16:00-17:00	Session 22E: User experience (chair: Mark Wigley) Room 1.61	
16:00-16:20	9340	<a href="#">Mark Wigley</a> , Karsten Pippig, Olaf Forte, Sebastian Denier and Roman Geithövel. A New Swiss Map Generation for Mobile Use
16:20-16:40	4838	Thalita Mascarenhas and <a href="#">Luciene Delazari</a> . Mobile first proposition of UFPR CampusMap
16:40-17:00	1187	Jonas Oesch, Joana Kelén, Tumasch Reichenbacher and <a href="#">Arzu Çöltekin</a> . User experience with smartphone based global-scale thematic maps in data journalism
16:00-17:00	Session 22F: Toponymy (chair: Peter Jordan) Room 1.62	
16:00-16:20	9609	Bábara Alonso and <a href="#">Irene Sahagún Luis</a> . Exonyms in Spanish. Criteria and usage in cartography
16:20-16:40	1598	<a href="#">Keiji Yano</a> , Kazumasa Hanaoka, Ryo Kamata, Narushige Shiode and Shino Shiode. Development of a Japanese 'GIS place name dictionary' as a basis for interdisciplinary research
16:00-17:00	Session 22G: Afternoon Posters B Room 2.41 & 2.42	
	7301	<a href="#">Mzikayise Shabangu</a> and Nompumelelo Zandile Shabangu. Geospatial Information Science: A tool for Sustainable Forest Management of Miombo Woodlands
	7548	<a href="#">Daniel Szatmári</a> , Monika Kopecká, Ján Feranec, Tomáš Goga, Šimon Opravil, Michal Sviček, Róbert Fencík and Juraj Papčo. Environmental data and satellite images: information sources for the identification of illegal activities in the landscape on the example of Slovakia
	8402	<a href="#">Simbarashe Jombo</a> and Mohamed Ahmed. Exploring active LiDAR and very high spatial resolution optical data in tree mapping
	2867	<a href="#">Eric Losang</a> , Francis Harvey and Jonathan Gescher. hin&weg – unveiling migration patterns using an analytical visualisation approach
	6673	Coralí Gonzalez, Maribel Galaz and <a href="#">Jeanette Araneda</a> . Data model for the 1:25,000 scale digital cartography of the IGM - Chile

### Wednesday, 16 August 2023

09:00-10:00	Session 24A: Geospatial semantics (chair: Václav Talhofer) Auditorium 2	
09:00-09:20	773	<a href="#">Haijiang Xu</a> , Tinghua Ai, Qingsheng Guo and Yi Xiao. From Maps to Geospatial Knowledge Graph: Geospatial Knowledge Representation and Reasoning
09:20-09:40	7978	<a href="#">José Pablo Ceballos Cantú</a> , Markus Jobst and Georg Gartner. Understanding Relevance in Maps through the use of Knowledge Graphs
09:40-10:00	5027	<a href="#">Linfang Ding</a> , Guohui Xiao, Albulen Pano, Hongchao Fan, Diego Calvanese and Liqiu Meng. Querying CityGML Data through Virtual Knowledge Graphs
09:00-10:00	Session 24B: Standardization in cartography (chair: Amy Griffin) Room 1.41 & 1.42	

09:00-09:20	8209	<u>Serena Coetzee</u> , Silvana P Camboim, Amy L Griffin, Dalia E Varanka, Petr Kubicek, Francis Harvey and Franz-Josef Behr. "Cartography and Open Standards": A Proposal for an Open Geospatial Consortium Technical Paper
09:20-09:40	3558	<u>Nina Polous</u> . Representation of Real-World Complexities: a paradigm shift
09:40-10:00	7404	<u>Jérôme Jacovella-St-Louis</u> , Erwan Bocher, Olivier Ertz and Maxime Collombin. Next generation OGC standard for cartographic portrayal interoperability
09:00-10:00	Session 24C: Geospatial analysis and modelling (chair: Tholang Mokhele) Room 1.63 & 1.64	
09:00-09:20	4845	<u>Andrea Iescheck</u> , Julia Strauch, Claudia Sluter, Heleniza Campos and Maithê Jeronimo. Thematic cartography as a support for understanding social vulnerability in Porto Alegre region, Brazil
09:20-09:40	7323	<u>Sofia Gavrilova</u> . Mapping the everyday geographies of new waves of Russian emigration in Tbilisi.
09:40-10:00	7779	<u>Esther Amoako</u> , Owusua Yamoah and Dennis Donkor. Effects of Covid-19 Pandemic on Spatial Patterns of Burglaries (2019-2020) in Chicago, Illinois
09:00-10:00	Session 24D: User experience (chair: Susanne Bleisch) Room 1.43 & 1.44	
09:00-09:20	6822	<u>Dajana Snopková</u> and Lukáš Herman. Spatial aspects of evacuation: A closer look at user interaction during route choice
09:20-09:40	7907	<u>Kaori Ito</u> , Hikari Tsuji, Sho Hamamatsu and Seiya Takayanagi. Investigation of Sequential Order of Sketch Map Drawing After Walking in the City
09:40-10:00	761	Luana D. S. Peres, <u>Claudia R. Sluter</u> and Luiz F. Velho. User-centered design of a geoinformation system for identifying the visitor's impact in environmentally fragile areas in natural parks
09:00-10:00	Session 24E: History of Cartography (chair: Igor Drecki) Room 1.61	
09:00-09:20	5031	Olesia Ignateva and <u>Menno-Jan Kraak</u> . Revisiting schools of cartographic thought: ideological connotations in the (Post-) Soviet school
09:20-09:40	6639	<u>János Jeney</u> . Ethnic Map in the Book containing the Williamstown Lectures of Count Teleki
09:40-10:00	4022	<u>Martin Davis</u> and Alexander Kent. An overview of the Soviet mapping of South Africa
09:00-10:00	Session 24F: Visual analytics (chair: Anthony Robinson) Room 1.62	
09:00-09:20	8881	<u>Timofey Samsonov</u> . Points-to-polygons and reverse animations for enhanced visual analytics on multiscale thematic maps
09:20-09:40	4894	<u>Anthony C. Robinson</u> , Timothy J. Prestby, Dave McLaughlin, Lily M. Houtman, Patrick Dudas and Christina Grozinger. Geovisualization for Pollinator Decision Support with Beescape NexGen
09:40-10:00	6192	<u>Bolelang Sibolla</u> , Terence van Zyl and Serena Coetzee. Real time visual analytics of moving features: A case of vessel movement
10:00-10:30	Break	
10:30-11:10	Session 26: Keynote presentation: Patricia Solis (chair: Serena Coetzee) Auditorium 2	
10:30-11:10	<u>Patricia Solis</u> . The Power of Mapping as Knowledge Exchange for a more Resilient Future	
11:20-12:40	Session 27A: Cartography and children (chair: Carla Cristina Sena) Auditorium 2	
11:20-11:40	6135	<u>José Jesús Reyes Nunez</u> . The presence of geoinformatics in Hungarian secondary education
11:40-12:00	3672	D. R. Fraser Taylor, Regina Almeida Araujo, Carla Cristina R. G. de Sena, Jose Jesus Reyes Nunez, Sherri Sunstrum and <u>Romola Thumbadoo</u> . Commemorating the 30th Anniversary of the Barbara Petchenik Children's Map Competition and exploring directions for the future



12:00-12:20	9753	Zenuella S Thumbadoo, Kuhle Ntintili, Fraser Taylor and <a href="#">Romola Thumbadoo</a> . Title Children mapping their realities and aspirations: an innovative methodological tool with implications for practice, program and policy
12:20-12:40	893	<a href="#">Chelsea Nestel</a> . Mapping Across the Curriculum: Cartographic Theory for K-8 Education
11:20-12:40	Session 27B: Education and training (chair: Tao Wang) Room 1.41 & 1.42	
11:20-11:40	2038	<a href="#">Juliane Cron</a> and Liqiu Meng. Competences of a modern academic cartographer
11:40-12:00	3829	<a href="#">Terje Midtbø</a> , Temenoujka Bandrova, Georg Gartner, Miljenko Lapaine, Liqiu Meng, Jie Shen, Dalia Varanka, Vít Voženilek and Tao Wang. Cartographic Body of Knowledge – work in progress
12:00-12:20	6636	<a href="#">Kamil Choromański</a> , Dariusz Gotlib and Jakub Łobodecki. Jupyter Technology as a Cartographer's Work Environment: A Case Study
12:20-12:40	1847	<a href="#">Gertrud Schaab</a> , Serena Coetzee, Nerhene Davis and Faith Karanja. Developing teaching/learning materials on "Sense of Place" with students in an international university cooperation: overall approach and first phase outcomes at HKA
11:20-12:40	Session 27C: Generalisation and multiple representation (chair: Izabela Karsznia) Room 1.63 & 1.64	
11:20-11:40	2619	Tamer Nada, <a href="#">Christos Kastrisios</a> , Brian Calder, Christie Ence, Craig Greene and Amber Bethell. Towards Automated Nautical Chart Compilation and Verification of Output Topology and Safety
11:40-12:00	2741	<a href="#">Albert Adolf</a> , Karolina Wereszczyńska, Izabela Karsznia, Robert Weibel and Stefan Leyk. Data enrichment and supervised learning in road and settlement feature selection for small scale maps
12:00-12:20	3784	<a href="#">Junbo Yu</a> , Tinghua Ai, Yi Xiao and Lingrui Yan. A Super-pixel Scaling Approach to Detect Inconsistency of Cross-layer Tile Maps
12:20-12:40	4924	Haowen Yan, Weifang Yang, Xiaomin Lu and <a href="#">Pengbo Li</a> . Quantitative expressions of spatial similarity between road networks in multiscale map spaces
11:20-12:40	Session 27D: Augmented, virtual and mixed reality in cartography (chair: Jan Wilkening) Room 1.43 & 1.44	
11:20-11:40	8714	Richard Heyder, Stefan Sauer and <a href="#">Jan Wilkening</a> . Development of an interactive VR flight simulation with ArcGIS SDK for Unity and a hang glider
11:40-12:00	8381	<a href="#">Peter Fischer-Stabel</a> , Jochen Kubiniok and Joshua Azvedo. 3D-Terrain Mapping and Mixed Reality Cartography supporting Edutainment in Landscape Genesis - The Saarschleife Geotope Application
12:00-12:20	9800	<a href="#">Julian Keil</a> , Marco Weißmann, Annika Korte, Dennis Edler and Frank Dickmann. Measuring Physiological Responses to VR-Based Urban Environments
12:20-12:40	3186	<a href="#">Helge Olberding</a> and Mark Vetter. Analysis of cartographic symbols as visual support in interactive VR geovisualizations
11:20-12:40	Session 27E: Geospatial analysis and modelling (chair: Bin Jiang) Room 1.61	
11:20-11:40	4263	<a href="#">Gabrielle Silva Gardim</a> , Ana Catarina Pereira Antonio and Edmur Azevedo Pugliesi. Spatial analysis of scorpion accidents in Brazil: its relation to climate and urbanization
11:40-12:00	3897	<a href="#">Yihong Yuan</a> and Andrew Wylie. Exploring the Spatio-temporal Patterns of Urban Fire Incidents
12:00-12:20	7959	Kristie Hu and <a href="#">Jonathan Li</a> . Using Least Cost Path Analysis to Plan a New Bypass Route on Highway 401 to Mitigate Traffic Congestion and Impacts in the City of Toronto, Ontario
12:20-12:40	1973	<a href="#">Thabani Khwela</a> . The influence of environmental factors on the historical distribution of <i>B. pfeifferi</i> in the Tshwane Metropolitan Municipality
11:20-12:40	Session 27F: Maps and the internet (chair: Michael Peterson) Room 1.62	
11:20-11:40	7854	<a href="#">Timofey Samsonov</a> , Anastasia Shurygina, Mikhail Varentsov, Pavel Kargashin, Yulia Yarynich and Pavel Konstantinov. Interactive web mapping for urban climate monitoring and research based on reference and crowdsourced observations

11:40-12:00	567	<a href="#">Michael Peterson</a> and Paul Hunt. Label Density in Large-Scale Online Maps
12:00-12:20	981	Bochra Bettaieb and <a href="#">Yoshiki Wakabayashi</a> . Visualising temporal changes in visitors' areas of interest using online geotagged photographs
12:20-12:40	1163	<a href="#">Emily Meriam</a> . Create Custom Basemaps for Desktop or Mobile Applications
12:40-14:30	Break	
14:30-15:30	Session 29A: Art and cartography (chair: Darren Sears) Auditorium 2	
14:30-14:50	1101	<a href="#">Taien Ng-Chan</a> . Voyage Around Our Rooms: Performance in the Mapping of Lockdown Spaces
14:50-15:10	9789	<a href="#">Darren Sears</a> . Fracturing, Flux & Fragility: Mapping Ecological Islands & Edges
15:10-15:30	5412	Marcin Wereszczyński and <a href="#">Albert Adolf</a> . The Witcher world map. People need maps of imaginary places.
14:30-15:30	Session 29B: Map design (chair: David Forrest) Room 1.41 & 1.42	
14:30-14:50	5163	<a href="#">David Forrest</a> . Issues in the design of bus network maps
14:50-15:10	8084	<a href="#">Kenneth Field</a> . Yet another design for an old map
15:10-15:30	6441	<a href="#">Beata Medynska-Gulij</a> and Blazej Ostrowski. How to Design Map of 'Utopiae' for Game Players?
14:30-15:30	Session 29C: Cognitive issues in geographic information visualization (chair: Nina Polous) Room 1.63 & 1.64	
14:30-14:50	8332	<a href="#">Romola Thumbadoo</a> , Zenuella S Thumbadoo, Jabulile Mazibuko, Fraser Taylor and Alexander Wolodtschenko. Cartography, Children's Mapping, Drawing and Painting, and Photoatlas Storytelling: An Innovative Transdisciplinary Project
14:50-15:10	1236	<a href="#">Christian E. Murphy</a> , Nargiz Kurumbayeva and Brandon Serrao. Evaluating Gaze-Based Interfaces for Map Interaction
15:10-15:30	8416	<a href="#">Nina Polous</a> . Machines as potential end users of maps in future: a key question to ponder upon?
14:30-15:30	Session 29D: Education and training (chair: Sanet Carow) Room 1.43 & 1.44	
14:30-14:50	3708	<a href="#">Olivier Godard</a> . Concours Carto, how can we teach cartography by map contest ?
14:50-15:10	9957	<a href="#">Iori Sasaki</a> , Masatoshi Arikawa, Min Lu and Ryo Sato. Educational Potential of Map Storytelling Creation using Data Objects-Driven Mobile Mapping Toolkit – KoPpoMai
15:10-15:30	4587	<a href="#">Georg Gartner</a> . Activating students in cartographic education
14:30-15:30	Session 29E: Cartographic heritage into the digital (chair: Tomáš Janata) Room 1.61	
14:30-14:50	2998	Mariam Gambashidze, Jana Moser and <a href="#">Jakob Listabarth</a> . U-turn in map making to overcome shortcomings of territorial visualisations
14:50-15:10	9809	Krisztián Kerkovits and <a href="#">Mátyás Gede</a> . Parametrization of the Hungarian Stereographic Map Sheets
15:10-15:30	9930	Julius Knechtel, Jan-Henrik Haurert, Youness Dehbi and <a href="#">Lukas Arzoumanidis</a> . Self-Constructing Graph Convolutional Networks for Semantic Segmentation of Historical Maps
14:30-15:30	Session 29F: Crowdsourcing in cartography and GIScience (chair: Aslam Parker) Room 1.62	
14:30-14:50	8136	<a href="#">Franz-Josef Behr</a> , Meike Buchstab, Paul Gräfe, Luisa Katzmaier, Marius Strack and Ludwig Baumgart. OpenStreetMap Data as a Basis for Official Geospatial Data: An Investigation into Updating the Building Stock Data for Municipalities in Baden-Württemberg, Germany
14:50-15:10	1042	Tayani Peterlini, Marcio Schmidt, Elias Elias, <a href="#">Silvana Camboim</a> and Caio Paiva. Identifying Temporal Patterns of Contributions to OpenStreetMap in Brazilian Cities: The Role of Cell Size.
15:10-15:30	4213	Yao Sun, Stefan Auer, <a href="#">Liqiu Meng</a> and Xiao Xiang Zhu. Artificial Intelligence based Building Attributes Enrichment in OpenStreetMap using Street-view Images

15:30-16:00	Break
16:00-17:00	Session 31A: Earth observation and cartography (chair: George Chirima) Auditorium 2
16:00-16:20	3343 <a href="#">Feng Qi</a> , Andres Ospina Parra, Yisha Zhang, Jennifer Block-Lerner, Jonah McManus and Fanxi Wang. Mapping environmental properties through image processing for an environmental perception study
16:20-16:40	4185 <a href="#">Colette de Villiers</a> , Cilence Munghemezulu, George J. Chirima, Solomon G. Tesfamichael and Zinhle Mashaba-Munghemezulu. Crop classification and weed detection in rainfed maize crops using UAV and PlanetScope imagery
16:40-17:00	4954 <a href="#">Tatiana Kuplich</a> , Luciana Soler, Igor Narvaes, Patricia Trindade, Daniela Peixoto, Greice Silveira and Claudio Almeida. The Brazilian Pampa as part of INPE´s official program for mapping native vegetation removal
16:00-17:00	Session 31B: Location based services (chair: Haosheng Huang) Room 1.41 & 1.42
16:00-16:20	5363 <a href="#">Laure De Cock</a> , Guillaume Treille de Grandsaigne, Philippe De Doncker, Christophe Vandeviver, Steven Verstockt and Nico Van de Weghe. The least crowded path: where to start?
16:20-16:40	8423 Zihao Zhao, <a href="#">Tao Wang</a> , Zixiang Wang, Ruixuan Geng and Yiru Zhang. Design and Implementation of Geo-visualization of Human Mobility and Building Occupancy on Smart Campus
16:40-17:00	217 <a href="#">Anna de Jager</a> . Story maps to support sense of place and conservation within urban greenspace
16:00-17:00	Session 31C: Map design (chair: Sam Arundel) Room 1.63 & 1.64
16:00-16:20	595 <a href="#">Lourens Snyman</a> , Serena Coetzee and Victoria Rautenbach. Evaluating data classification methods for choropleth maps to analyse geographic accessibility in South Africa
16:20-16:40	8454 <a href="#">Oren Raz</a> . Statistical Data Integration with Maps using Dot Density
16:40-17:00	3642 <a href="#">Elzbieta Bielecka</a> and Beata Całka. What do we want to communicate? A few reflections on the choropleth map class ranges.
16:00-17:00	Session 31D: Marine cartography (chair: Lysandros Tsoulos) Room 1.43 & 1.44
16:00-16:20	2747 <a href="#">Christie Ence</a> and Edward J. Van Den Aamele. Using automated cartography to create maritime charts suitable for hard copy printing.
16:20-16:40	3321 <a href="#">Lucinda Roberts</a> , Joanna Merson and Woan Foong Wong. Creating a Global Historic Maritime Trade Model Using A Least-cost Surface Analysis
16:40-17:00	8560 <a href="#">Christos Kastrisios</a> . Efforts to Streamline Bathymetry Compilation for Marine Navigation
16:00-17:00	Session 31E: Participatory mapping (chair: Gertrud Schaab) Room 1.61
16:00-16:20	1295 Adryane Gorayeb, <a href="#">Gislleidy Uchôa Tavares</a> , Jader de Oliveira Santos, Jair Bezerra dos Santos Júnior, Christian Brannstrom and Mirella Di Lorenzo. Participatory Mapping of the Water-Food-Energy Nexus in the Brazilian Semiarid Region to meet the SDGs
16:20-16:40	5002 <a href="#">Antonina Savinova</a> and Moisei Zakharov. Indigenous knowledge transfer through participatory mapping: attitude of the Arctic population to communications using mental maps
16:40-17:00	8721 <a href="#">Sumit Sen</a> , Shubham Sen, Aaron Thakker, Aaron Thakkar and Aradhya Patil. Learning of spatial correlation between urban solid-waste and stray dog population with participatory mapping
16:00-17:00	Session 31F: Geospatial analysis and modelling (chair: Susan Henrico) Room 1.62
16:00-16:20	9415 <a href="#">Małgorzata Wieczorek</a> and Wojciech Przybył. Comparative measures of raster qualitative maps
16:20-16:40	7886 <a href="#">Yanan Wu</a> , May Yuan and Yalin Yang. Understanding the role of geographical environments in emergency dispatches with GPS trajectories

16:40-17:00	2679	<a href="#">Curtis Bailey</a> and Kyle Loggenberg. Mapping the spatial profile and susceptibility of illegal land occupation: A case study of the Cape Town Metropolitan area, South Africa
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## Thursday, 17 August 2023

09:00-10:00	Session 33A: Cartography and children (chair: Takashi Morita) Auditorium 2	
09:00-09:20	2117	<a href="#">Paula Juliasz</a> and Luiz Silva. Brazilian theses and dissertations on School Cartography in the period 2011 - 2020
09:20-09:40	312	<a href="#">Carla Sena</a> , Barbara Jordão and Waldirene Carmo. Valuing Historical Cartography in the study of ancient civilizations in basic education using Minecraft
09:40-10:00	5786	<a href="#">Théo Szanto</a> , François Lecordix and Emmanuel Séguin. Making the Minecraft® on demand project open-source and extensible by the community
09:00-10:00	Session 33B: Earth observation and cartography (chair: Bulelwa Semoli) Room 1.41 & 1.42	
09:00-09:20	3263	<a href="#">Xianghong Che</a> , Jiping Liu, Yong Wang and Qing Sun. Making Landsat 5, 7 and 8 reflectance consistent using MODIS nadir-BRDF adjusted reflectance as reference
09:20-09:40	171	<a href="#">Bulelwa Semoli</a> . Evaluation of the integration between level 1 of South African National land cover classes and topographical data
09:40-10:00	2715	<a href="#">Jean-François Girres</a> , Delphine Prunier, Tania Rodriguez, Auréa Pottier, Eric Léonard, Victor Audic, Maëlane Hellard and Jean-Albert Magnaudet. Analysis of the spatial extension of pineapple monocultures in northern Costa Rica using heterogeneous geographic data
09:00-10:00	Session 33C: Geospatial analysis and modelling (chair: Nondwe Monyake) Room 1.63 & 1.64	
09:00-09:20	4042	<a href="#">Roya Habibi</a> and Ali Asghar Alesheikh. Dealing with spatial heterogeneities to discover spatiotemporal event behaviour
09:20-09:40	6830	<a href="#">Peng Luo</a> , Yongze Song and Liqiu Meng. Revisiting the role of distance for spatial prediction
09:40-10:00	4951	<a href="#">Upendra Nath Mishra</a> . Development of geoid model and comparative evaluation
09:00-10:00	Session 33D: Open source geospatial technologies (chair: Ivan Henrico) Room 1.43 & 1.44	
09:00-09:20	2161	<a href="#">Ivan Henrico</a> , Susan Henrico, Rikus le Roux and Jacques Bezuidenhout. Radiometric mapping using QGIS to illustrate the distribution of naturally occurring radionuclides: a case of the Berg River estuary
09:20-09:40	5706	<a href="#">Ethan Shavers</a> , Lawrence Stanislawski, Joel Schott and Zachary Brosseau. Automated mapping of culverts, bridges, and dams
09:40-10:00	9892	<a href="#">Mátyás Gede</a> . Automatic Labels in Leaflet
09:00-10:00	Session 33E: User experience (chair: Luciene Delazari) Room 1.61	
09:00-09:20	4439	<a href="#">Yoshiki Wakabayashi</a> . Changes in map use after digitalisation: results from online surveys at three time periods
09:20-09:40	5096	<a href="#">Luciene Delazari</a> , Marcio Schmidt, André Mendonça, Tiago Lima Rodrigues and Leonardo Ercolin Filho. Smart Campus: how we get there? A study case at UFPR
09:40-10:00	6519	Catherine Dominguès, <a href="#">Laurence Jolivet</a> and Éric Mermet. What could perceptual and sensitive mapping be used for?
09:00-10:00	Session 33F: Geospatial data and software (chair: Bojan Šavrič) Room 1.62	
09:00-09:20	2724	<a href="#">Bojan Šavrič</a> and David Burrows. Requirements for Implementing Map Projections in GIS and Mapping Software

09:20-09:40	2129	<a href="#">Annika Bonerath</a> , Yu Dong and Jan-Henrik Haunert. An Efficient Data Structure Providing Maps of the Frequency of Public Transit Service Within User-Specified Time Windows
09:40-10:00	505	<a href="#">Justus Poutanen</a> , Christian Koski, Juha Oksanen and Pyry Kettunen. Lessons learnt from digitizing a label dataset for AI-based feature extraction of watercourses
10:00-10:30	Break	
10:30-11:10	Session 35: Keynote presentation: Pali Lehohla (chair: Derek Clarke) Auditorium 2	
10:30-11:10	<a href="#">Pali Lehohla</a> . Towards Cultural Economic Geography as a driver of sustainable development - cartography beyond coordinate geometry	
11:20-12:40	Session 36A: Cartography in early warning and crisis management (chair: Jiping Liu) Auditorium 2	
11:20-11:40	992	<a href="#">Noura Brahmi</a> and Mohsen Dhieb. Contribution of GIS to the Forecast mapping of marine flooding risk of a coastal seabka of Soliman (Gulf of Tunis – Tunisia)
11:40-12:00	1445	<a href="#">Joynal Abedin</a> . Mapping the geographically and temporally evolved flood risks in the contiguous United States
12:00-12:20	7565	<a href="#">Weilian Li</a> , Jan-Henrik Haunert, Yukun Guo and Youness Dehbi. Integrating cellular automata model into 3D representation for enhancing flood risk communication
11:20-12:40	Session 36B: Earth observation and cartography (chair: Peter Schmitz) Room 1.41 & 1.42	
11:20-11:40	7929	<a href="#">Nakul Gupta</a> . Automating conversion of remote sensing images to human readable map images using generative AI
11:40-12:00	6411	<a href="#">Chukwuma Okolie</a> , Jon Mills, Adedayo Adeleke and Julian Smit. Enhancing the vertical accuracy of Copernicus digital elevation model using tree-based machine learning models
12:00-12:20	7665	<a href="#">Peter Schmitz</a> , René Smit, Niell du Plooy and Antony Cooper. Groth's algorithm to detect the possible presence of landmines using changes in the reflection of plants.
12:20-12:40	2777	<a href="#">Luncedo Ngcofe</a> and Kgaugeto Nkoana. Sentinel 2 land cover product comparison: South African National land cover 2020 vs ESRI Global land cover 2020
11:20-12:40	Session 36C: Education and training (chair: Temenoujka Bandrova) Room 1.63 & 1.64	
11:20-11:40	787	Fanni Vörös, Béla Kovács and <a href="#">László Zentai</a> . The rising role of drones in the training of cartographers at ELTE
11:40-12:00	6711	<a href="#">Silvia Marinova</a> and Temenoujka Bandrova. Interactive Web mapping for university education
12:00-12:20	8618	<a href="#">Reginald Archer</a> , Naomi von Bose, Sue Ebanks and Edith Davis. Enhancing Geoscience Education at Historically Black Colleges and Universities: Mapping Opportunities and Developing Capacity-Building Resources
12:20-12:40	9246	<a href="#">Sanet Carow</a> and Rudi Pretorius. A model for improving spatial thinking in undergraduate modules with a spatial focus offered by Geography departments at selected South African universities
11:20-12:40	Session 36D: Augmented, virtual and mixed reality in cartography (chair: Mark Vetter) Room 1.43 & 1.44	
11:20-11:40	2518	<a href="#">Nuzhat Tabassum Nawshin</a> . Design Recommendations for Map-based Storytelling in Augmented Reality: A Preliminary Study
11:40-12:00	470	Fei Yang, Haoyu Yang, Shuai Hong, Jie Shen, Jijun Yang, Long Tang, Zhaowei Tian, Tengfei Chai and <a href="#">Xiaoyan Liu</a> . Design and implementation of mixed reality narrative map of Nanjing Ming Dynasty City Wall based on video integration
12:00-12:20	8356	Rebekka Bärthele, Stefan Sauer and <a href="#">Jan Wilkening</a> . Exploring the potential of an Augmented Reality sandbox for geovisualization
12:20-12:40	8451	<a href="#">Mark Vetter</a> . The usage of "fog" as a visual variable in 3D-cartographic virtual reality environments

11:20-12:40	Session 36E: Map design (chair: Bill Cartwright) Room 1.61	
11:20-11:40	1139	<a href="#">Mela Žuljević</a> . Design Space in Cartography: Outlining a design perspective in critical analysis of peace and conflict visualisations
11:40-12:00	5565	<a href="#">Georg Gartner</a> , Johanna Pühringer and Silvia Marinova. Confirming cross-cultural differences in map design perception
12:00-12:20	2119	<a href="#">Menno-Jan Kraak</a> , Jakob Listabarth and Pei Nie. Improving the atlas experience: the use of annotations
12:20-12:40	8011	Thomas Lima, Jaqueline Pisetta and <a href="#">Silvana Camboim</a> . Exploring Cartographic Narratives: Applying Storytelling Techniques and Agile Methodologies
11:20-12:40	Session 36F: Crowdsourcing in cartography and GIScience (chair: Christel Hansen) Room 1.62	
11:20-11:40	5147	<a href="#">Christel Hansen</a> and Melandrie Smit. Using GISc for modelling energy expenditure when traversing paths in nature reserves of the City of Tshwane, South Africa
11:40-12:00	1175	<a href="#">Madalina Gugulica</a> and Dirk Burghardt. A social-sensing approach to monitoring human-biodiversity interactions in urban environments
12:00-12:20	5965	<a href="#">Nina Polous</a> . A Holistic View on Volunteered Geographic Information
12:20-12:40	6974	<a href="#">Alicia Cowart</a> and Darin Jensen. Food, Water, Shelter: Crowdsourcing a Diverse Atlas Trilogy on Global Human Needs
12:40-14:30	Break	
14:30-15:30	Session 38A: Cartography with data from unmanned aerial vehicles (chair: Andrés Arístegui) Auditorium 2	
14:30-14:50	4687	<a href="#">Sasanka Madawalagama</a> , Liqiu Meng and Christian E. Murphy. ODM2OSM: A tool to extract building information from open drone data to enrich OpenStreetMap
14:50-15:10	4981	<a href="#">Simiso Ntuli</a> , Angus Forbes, Mayshree Singh and Mulemwa Akombelwa. 3D UAS-SfM Point Cloud Classification in Urban Terrestrial Environment
15:10-15:30	9383	<a href="#">Edina Hajdú</a> and Márton Pál. Using drone photogrammetry for establishing a 3D geosite model application
14:30-15:30	Session 38B: Maps and graphics for blind and partially sighted people (chair: Waldirene Carmo) Room 1.41 & 1.42	
14:30-14:50	8486	<a href="#">Jakub Wabiński</a> , Guillaume Touya and Albina Mościcka. Semi-automatic development of thematic tactile maps
14:50-15:10	4720	<a href="#">Jan Brus</a> , Radek Barvir and Alena Vondrakova. Multi-colour 3D printing for supporting tactile perception of geospatial visualizations
15:10-15:30	7514	<a href="#">Radek Barvir</a> , Jan Brus and Alena Vondrakova. A new approach to making 3D-printed geographic models interactive for people with visual impairment
14:30-15:30	Session 38C: Open data for cartography and GIScience (chair: Luciene Delazari) Room 1.63 & 1.64	
14:30-14:50	5608	Joel Martin Geda, <a href="#">László Zentai</a> and Andrea Pődör. Open Data and machine learning in the service of complementing municipal GIS inventory
14:50-15:10	1266	Joel Conti, George Oberle, Alyssa Fahringer and <a href="#">Matthew Rice</a> . Geographies of Inequities: Towards an Open-Source Digital History of Slave Sales in Virginia
15:10-15:30	8182	Jian Yang, Fenli Jia, Yeqiu Xu, <a href="#">Linfang Ding</a> and Nianhua Liu. Building an Open Dataset of Ubiquitous Map Images for Cartographic Research: Practices and Prospects
14:30-15:30	Session 38D: User experience (chair: Tumasch Reichenbacher) Room 1.43 & 1.44	

14:30-14:50	1649	Homeyra Mahmoudi, <a href="#">Silvana Camboim</a> and Maria Brovelli. An interactive voice recognition web application for geospatial data visualisation
14:50-15:10	9819	<a href="#">André Mendonça</a> , Luciene Delazari and Marcio Schmidt. Issues of a Map interface with SVI imagery in a Smart Campus Context
15:10-15:30	5570	<a href="#">Mona Bartling</a> , Tumasch Reichenbacher and Sara I. Fabrikant. Leveraging map use context for advancing cartography in the 21st century
14:30-15:30	Session 38E: Cartographic heritage into the digital (chair: Mátyás Gede) Room 1.61	
14:30-14:50	5089	<a href="#">János Jeney</a> . Reconstructing Ethnic Maps for Interactive Use
14:50-15:10	5298	<a href="#">Igor Drecki</a> and Antoni Moore. Visualising Geographically Classified Cartographic Collections
15:10-15:30	6052	<a href="#">Tomáš Janata</a> , Jiří Krejčí and Jiří Cajthaml. New Approaches to Visualization of Land Administration within Space and Time: the Land of Bohemia
14:30-15:30	Session 38F: Earth observation and cartography (chair: Flora Makgale) Room 1.62	
14:30-14:50	5385	<a href="#">Flora Makgale</a> and Christopher Munyati. Evaluating use of satellite imagery in planning and poverty alleviation in the Mahikeng - Ramotshere Moiloa Local Municipalities based on vegetation cover
14:50-15:10	7478	<a href="#">Yifang Ban</a> , Sebastian Hafner, Puzhao Zhang and Yu Zhao. EO-AI4GlobalChange: Earth Observation Big Data and Deep Learning for Global Environmental Change Monitoring
15:30-16:00	Break	
16:00-17:00	Session 40A: Earth observation and cartography (chair: André Skupin) Auditorium 2	
16:00-16:20	4125	<a href="#">Martin Chari</a> , Makgabo Mashala and Cecilia Masemola. Leveraging machine learning and drone multispectral data for site-specific weed management in tomato agricultural areas
16:20-16:40	5848	<a href="#">André Skupin</a> , Kyle Jones and Trent Biggs. Neural Network Modelling of Crop Phenology in Support of Agricultural Monitoring – A Base Map Approach
16:40-17:00	8576	Zinhle Mashaba-Munghemezulu, Cilence Munghemezulu, George Chirima and <a href="#">Lwandile Nduku</a> . Smallholder Maize Farm Mapping With Multi-Temporal Sentinel-1 Data in Support of the Sustainable Development Goals
16:00-17:00	Session 40B: Geospatial semantics (chair: Francis Harvey) Room 1.41 & 1.42	
16:00-16:20	8269	Markus Jobst and <a href="#">Georg Gartner</a> . A formal description of topographic space – maps contributing to AI
16:20-16:40	4085	<a href="#">Yong Wang</a> , Kaixuan Du, Xianghong Che, Ruiyuan Ma and Fu Ren. Recognition and Semantic Information Extraction for Map Based on Deep Learning
16:40-17:00	2092	<a href="#">Dongsheng Chen</a> , Yu Feng and Liqiu Meng. Urban morphology meets geo-knowledge graph
16:00-17:00	Session 40C: Maps and graphics for blind and partially sighted people (chair: Jan Brus) Room 1.63 & 1.64	
16:00-16:20	3018	<a href="#">Barbara Jordão</a> , Sonia Castelar, Carla Cristina Sena and Waldirene Carmo. The importance of tactile maps in the development of spatial thinking
16:20-16:40	4255	<a href="#">Albina Mościcka</a> , Emilia Śmiechowska-Petrovskij, Jakub Wabiński, Andrzej Araszkievicz and Damian Kiliszek. Methodological study of tactile signs readability
16:40-17:00	5099	<a href="#">Waldirene Carmo</a> , Bárbara Jordão and Carla Sena. The introduction of inclusive cartography as a content of basic education
16:00-17:00	Session 40D: User experience (chair: Wolfgang Kainz) Room 1.43 & 1.44	

16:00-16:20	5844	<a href="#">Izabela Gołębiewska</a> , Tomasz Opach, Arzu Çöltekin, Jolanta Korycka-Skorupa and Jan Ketil Rød. Split legend or split attention? Evaluating layout designs of geodashboard interfaces
16:20-16:40	6788	<a href="#">Andreas Divanis</a> , Anudari Batsaikhan and Alissa Lüpke. A co-designed portal for intuitive navigation
16:40-17:00	7915	Gianna Daniela Müller, Daria Hollenstein, Arzu Çöltekin and <a href="#">Susanne Bleisch</a> . Square-glyphs: Assessing the readability of multidimensional spatial data visualized as square-glyphs
16:00-17:00	Session 40E: Cartography and children (chair: José Jesús Reyes Nunez) Room 1.61	
16:00-16:20	3352	<a href="#">Alicia Iverson</a> . An introduction to (C)art Therapy: Sketch mapping workshops for early teens as a case study in Post-Representational Cartography
16:20-16:40	384	<a href="#">José Jesús Reyes Nunez</a> and Krisztina Irás. Hungarian writers and poets in the BIO-MAPS Biographical Map Library
16:40-17:00	3183	<a href="#">Paula Juliasz</a> . Spatial representation and the place-territory relation
16:00-17:00	Session 40F: Geospatial data in different applications (chair: Gobe Hobona) Room 1.62	
16:00-16:20	4849	<a href="#">Asnat Mangell</a> . Innovative Projects In The Field Of Geographic Information Analytics And Cartography, In The Worlds Of Energy And Electricity
16:20-16:40	7587	<a href="#">Dmitriy Loginov</a> . Real and Virtual maps conception in web mapping: a case of cartographic support for geological exploration in Andaman deep water basin
16:40-17:00	3305	<a href="#">Zulfa Nuraini Afifah</a> , Héctor Ochoa-Ortiz and Georg Gartner. Dietary Map: Participatory Mapping Application for Specific Diets

## Friday, 18 August 2023

09:00-10:00	Session 43A: Map design (chair: Claudia Robbi Sluter) Auditorium 2	
09:00-09:20	8177	<a href="#">Laurence Jolivet</a> , Daphné Bostancioğlu, Catherine Dominguès, Éric Mermet and Sevil Seten. Panel of sensitive mapping experiments with respect to various sources of information
09:20-09:40	9913	<a href="#">Momoko Yoshida</a> and Hajime Ishikawa. A Study of "Map Sense" that Supports the Accuracy of Maps Through Interviews with Imaginary Map Creators
09:40-10:00	3107	<a href="#">Sergio Come</a> , Claudia Sluter and Zacarias Ombe. Map design of the building cultural heritage in Maputo city – Mozambique
09:00-10:00	Session 43B: Earth observation and cartography (chair: Matthew Rice) Room 1.41 & 1.42	
09:00-09:20	2872	<a href="#">Sarah Ostertag</a> , Matthew Rice and John Qu. Investigating spatiotemporal trends of large wildfires in California (1950 – 2020)
09:20-09:40	4963	<a href="#">Talya Molema</a> and Solomon Tesfamichael. Comparing the efficiency of RADAR and optical remote sensing in mapping burnt areas within a grassland biome
09:00-10:00	Session 43C: Maps and graphics for blind and partially sighted people (chair: Marieke Kuijjer) Room 1.63 & 1.64	
09:00-09:20	1347	<a href="#">Vânia Souza</a> . The DF interactive thematic map built by and for deaf students: An interesting practice using Scratch and Makey Makey
09:20-09:40	7042	Vincent van Altena, Daan Rijnberk, Aafke van Welbergen, <a href="#">Marieke Kuijjer</a> , Jolijn Jansen, Ebelien Min, Tamara Visser, Niels van der Vaart and Julian Nauta. Tailoring tactile maps based on blind users' needs
09:00-10:00	Session 43D: User experience (chair: Arzu Çöltekin) Room 1.43 & 1.44	
09:00-09:20	2809	<a href="#">Carolyn Fish</a> , Paulo Raposo, Elaine Guidero and Robert Roth. Research Approaches in Cartography: A Preliminary Review



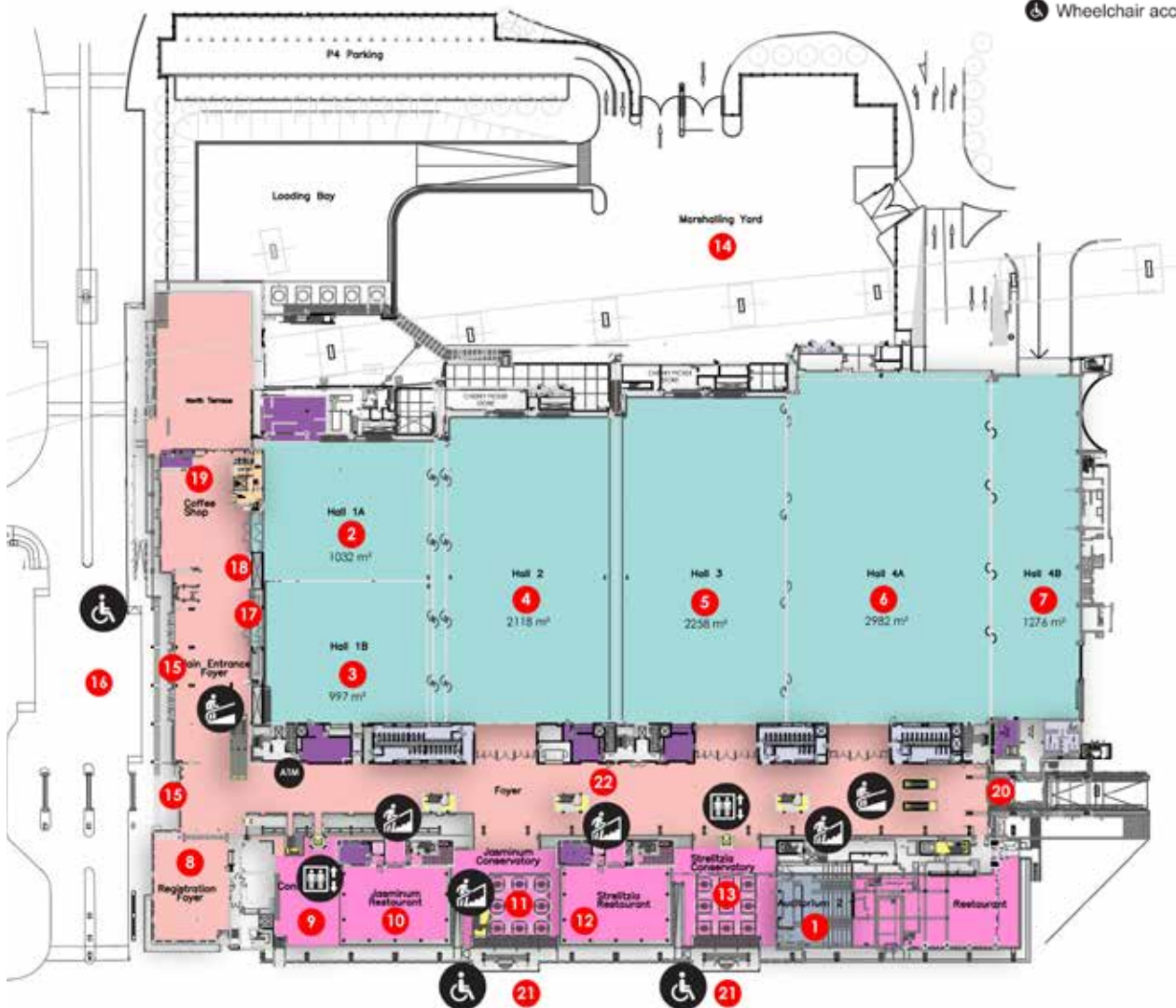
09:20-09:40	3047	<a href="#">Ayako Kagawa</a> . Deconstructing cartographic communication paradigms in the United Nations in the era of Data for action
09:40-10:00	5267	<a href="#">Michael Peterson</a> , Georg Gartner and David Fairbairn. Affordances and Models of Cartographic Communication
09:00-10:00	Session 43E: Digital twins (chair: Peter Newmarch) Room 1.61	
09:00-09:20	7489	<a href="#">Chenyu Zuo</a> and Jascha Grübel. Using Map-based Dashboard to Improve Geo-knowledge Communication: a use case on Digital Twins
09:20-09:40	3773	<a href="#">Yiping Chen</a> , Huifang Feng and Jonathan Li. Digital twins of building extraction from dual-channel airborne LiDAR point clouds
09:40-10:00	3573	<a href="#">Temenoujka Bandrova</a> , Silvia Marinova, Silvia Fulipova, Dobromir Filipov, Tsvetelina Evdenova, Yana Lipijska, Stanislav Vasilev and Lyubka Pashova. Digital technologies as a basis for building a museum of geodesy, photogrammetry and cartography
10:00-10:30	Break	
10:30-12:30	Session 45A: Cartography in early warning and crisis management (chair: Milan Konečný) Auditorium 2	
10:30-10:50	3640	<a href="#">Derrick Robert Irumba</a> , Anthjony Gidudu and Lydia Mazzi Kayondo. Analyzing the Variability of Wildfire Susceptibility in Queen Elizabeth National Park - Uganda
10:50-11:10	7231	<a href="#">Markus Bakaira</a> and Sylvain Aoudou Doua. Mapping and spatial modeling of the passage of bushfires in a context of protected areas in northern Cameroon: contribution of time series of sentinel-2 images.
11:10-11:30	942	<a href="#">Zdeněk Stachoň</a> , Ondřej Kvarda, Čeněk Šašinka, Alžběta Šašinková, Kateřina Johecová Johecová, Pavel Ugwitz, Milan Konecny and Petr Kubicek. Possibilities of Geographic Virtual Environments within the Crisis Management
11:30-11:50	9785	<a href="#">Shenghua Xu</a> , Jiping Liu, Yong Wang and Xianghong Che. Research on multi-dimensional disaster information perception and fusion service technology in underground and shelter space
10:30-12:30	Session 45B: Maps for mobile devices (chair: Zahn Munch) Room 1.41 & 1.42	
10:30-10:50	8516	<a href="#">Haoran Chang</a> and Yuemin Huang. Seize: A Mobile Augmented Reality Walking Game through Critical Making
10:50-11:10	3469	<a href="#">Lily Houtman</a> . At the Intersection of Mobile Thematic Cartography and Data Journalism
11:10-11:30	5606	<a href="#">Yang Gao</a> , Farzaneh Zangenehnej, Yang wjiang and Yan Zhang. Fast high accuracy kinematic smartphone positioning for location-based services
10:30-12:30	Session 45C: Cartography and GIScience for climate change (chair: Anne Ruas) Room 1.62 & 1.64	
10:30-10:50	3568	<a href="#">Petr Kavka</a> , Adam Tejkl, Jiri Cajthaml and Martin Hanel. Water sources for Irrigation in headwater catchment over the Czech Republic in changing climate
10:50-11:10	4229	<a href="#">Dolley Thibedi</a> , Nisa Ayob, Ncobile Nkosi, Lizaan de Necker and Thabani Khwela. The historic distribution of <i>Biomphalaria pfeifferi</i> and <i>Biomphalaria globosus</i> in the Vhembe district, Limpopo province.
11:10-11:30	5157	<a href="#">Jaroslav Hofierka</a> . Modelling and visualisation of land surface temperature in urban areas represented by 3D city models
11:30-11:50	6928	<a href="#">Keagen Liebenberg</a> and Sanjian Malapermal. Integrating spatial analytics in power system planning techniques for the green energy transition
10:30-12:30	Session 45D: Cartographic communication, education and training (chair: Sulette van der Merwe) Room 1.43 & 1.44	
10:30-10:50	2943	<a href="#">Laura Alemany Gómez</a> , Celia Sevilla Sánchez, Noelia Esther Aguiar Rivero, Andrés Arístegui Cortijo and Ana Velasco Tirado. Didactic Atlas of the National Geographic Institute of Spain

10:50-11:10	4340	<a href="#">Wangshu Wang</a> , Andrea Binn and Georg Gartner. Experiences with distance teaching and learning in cartography – a European perspective
11:10-11:30	2755	<a href="#">Takashi Morita</a> . Issues of Subjectivity and Objectivity in Ubiquitous Mapping
11:30-11:50	1444	Sebastian Meier, Edyta Paulina Bogucka, Florian Ledermann, <a href="#">Robert Emmett Roth</a> , Katarzyna Słomska-Przech, Fanni Vörös and Chelsea Nestel. Opportunities and Challenges for the Next Generation of Cartographers
10:30-12:30	Session 45E: Generalisation and multiple representation (chair: Timofey Samsonov) Room 1.61	
10:30-10:50	3399	<a href="#">Tianyuan Xiao</a> , Tinghua Ai, Huafei Yu, Min Yang and Pengcheng Liu. A Point Cluster Generalization Method based on Graph Convolutional Network
10:50-11:10	5119	<a href="#">Yu Feng</a> , Ning Qian, Cheng Fu, Zhiyong Zhou and Monika Sester. PolygonTranslator - learning to simplify building footprints from one scale to another
11:10-11:30	5737	<a href="#">Jagadish Boodala</a> , Onkar Dikshit and Nagarajan Balasubramanian. Addressing the unresolved proximity conflicts during the generalization of buildings using CartAGen
11:30-11:50	414	<a href="#">Anastasia Shurygina</a> and Timofey Samsonov. Interlevel information loss in hexagonal discrete global grid systems
12:30-14:00	Break	
14:00-16:00	Session 47: Closing Session (chair: Tim Trainor) Auditorium 2	

# Conference Venue

## CTICC WEST - Ground Level

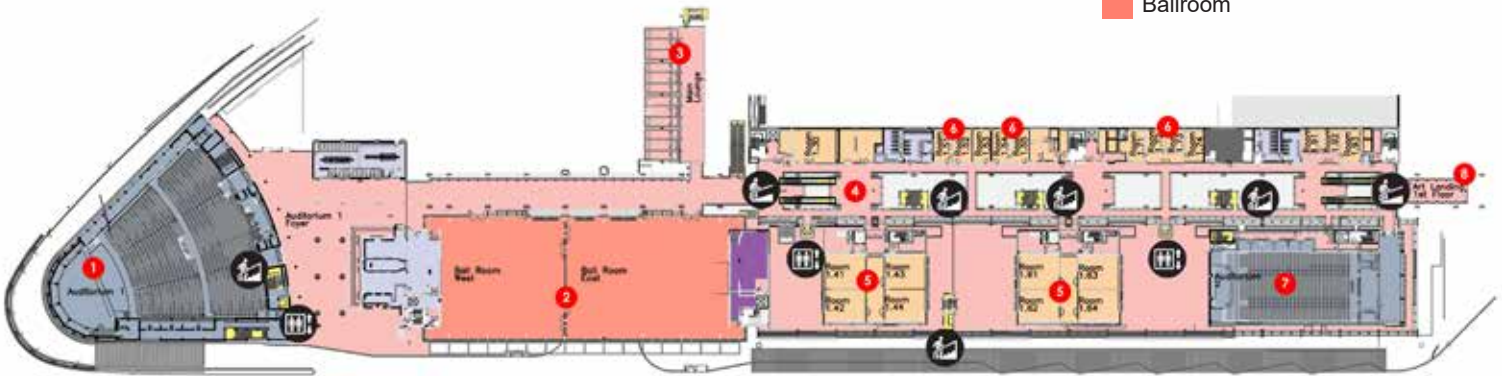
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|----------------------|----------------------------|--------------------------------|-----------------------|
| 1 Auditorium 2       | 9 Clivia conservatory      | 17 CTICC reception             | Hall                  |
| 2 Exhibition hall 1A | 10 Jasminum restaurant     | 18 Business centre             | Concourse             |
| 3 Exhibition hall 1B | 11 Jasminum conservatory   | 19 Coffee shop                 | Ablutions             |
| 4 Exhibition hall 2  | 12 Strelitzia restaurant   | 20 Entrance 5                  | Vertical circulation  |
| 5 Exhibition hall 3  | 13 Strelitzia conservatory | 21 Walter Sisulu entrances 3/4 | Meeting room / office |
| 6 Exhibition hall 4A | 14 Marshalling yard        | 22 Concourse                   | Lift                  |
| 7 Exhibition hall 4B | 15 Entrance 1/2            |                                | Escalator             |
| 8 Registration foyer | 16 Convention square       |                                | Stairs                |



# CTICC WEST - Level 1

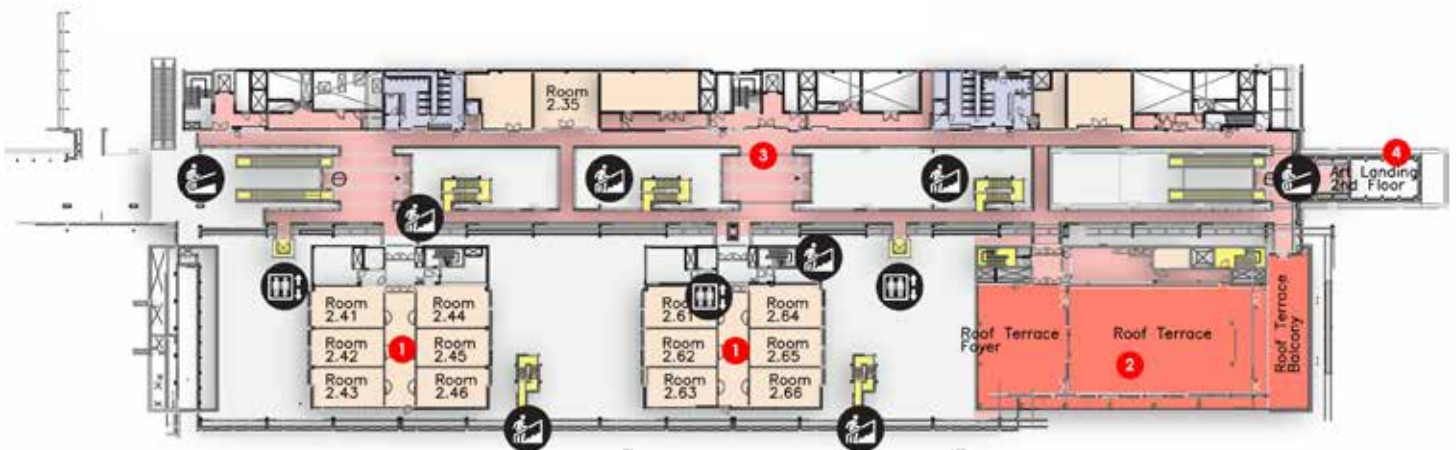
- 1 Auditorium 1
- 2 Ballroom
- 3 Main lounge
- 4 Gallery walkway
- 5 Meeting rooms
- 6 Meeting suites
- 7 Auditorium 2
- 8 Artwork landing

- Hall
- Concourse
- Ablutions
- Vertical circulation
- Meeting room / office
- Lift
- Escalator
- Stairs
- Double volume
- Kitchen
- Auditorium
- Ballroom



# CTICC WEST - Level 2

- 1 Meeting rooms
- 2 Roof terrace room
- 3 Circulation
- 4 Art landings





ICC 2023

