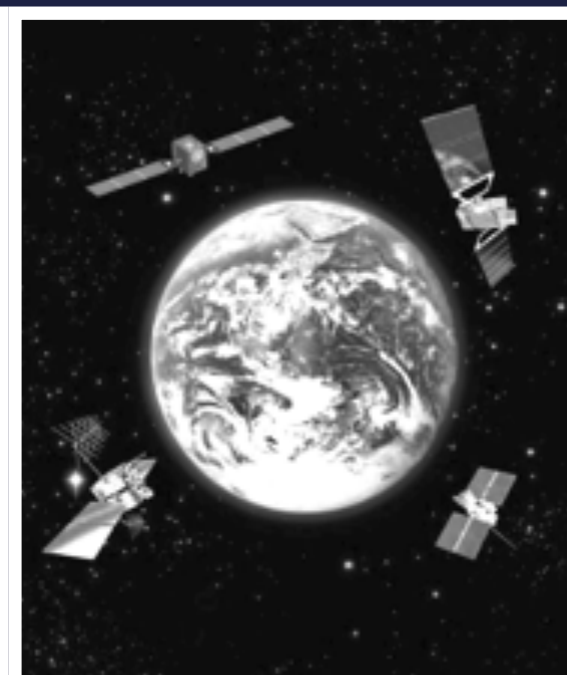
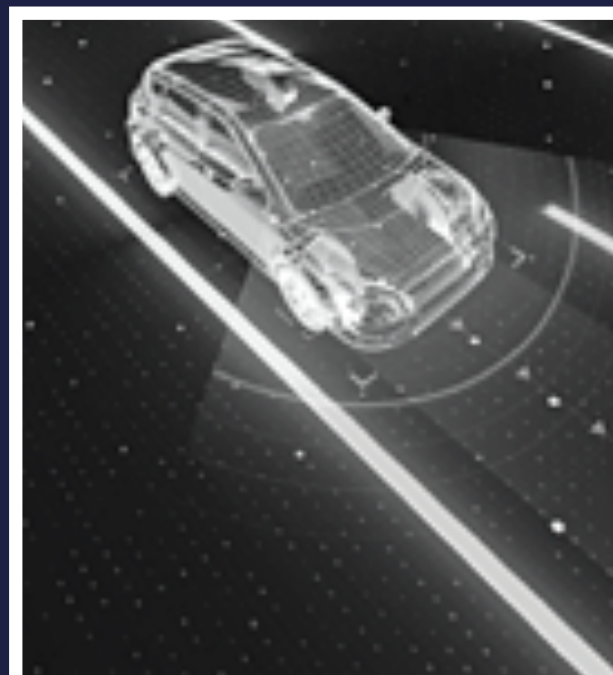


# MULTI-GNSS ASIA

**Satoshi Kogure,**  
**Co-Chair of Multi-GNSS Asia**  
**Director, National Space Policy Secretariat, Cabinet Office,**  
**The Government of Japan**



Supported by:



# WHAT'S MGA?



Multi-GNSS Asia (MGA) which promotes multi GNSS in the Asia and Oceania regions and encourages GNSS service providers and user communities to develop new applications and businesses. The MGA activities are reported annually in the ICG providers' forum. The MGA also supports developing countries in achieving its SDGs through technical support on GNSS via seminars for policy makers and more.

	Aug. 2020	GISTDA
	Aug. 2019	GISTDA
	Oct. 2018	RMIT, FrontierSI, GA, GNSS.asia, QSS
	Oct. 2017	LAPAN, BELS, GNSS.asia, QSS, JAXA
	Nov. 2016	Univ. Philippines, NAMRIA, Phivolcs, BELS, GNSS.asia, QSS, JAXA
	Dec. 2015	Soartech, BELS, GNSS.asia, QSS, JAXA, SPAC
	Oct. 2014	NSTDA, G-NAVIS, QSS, JAXA, SPAC
	Dec. 2013	G-NAVIS, HUST, QSS, JAXA, SPAC
	Dec. 2012	ANGKASA, JAXA, G-NAVIS, SPAC
	Nov. 2011	GTC, KARI, JAXA, SPAC
	Nov. 2010	IGNSS, JAXA, SPAC
	Jan. 2010	GISTDA, JAXA, SPAC



<https://www.multignss.asia>



<https://www.multignss.asia/contact>



<https://www.facebook.com/multignss>

What is MGA?

# PILLARS OF ACTIVITY

- Conference and Exhibition
- Networking and Capacity Building
- Infrastructure and Knowledge Sharing

## Conference and Exhibition

To share the latest advancements to the GNSS and PNT landscape, the MGA conference is organized annually in a different location across the Asia-Oceania region. Delegates can also find out about new technologies, products and services, updates on R&D projects and achievements. The conference attracts participants from industry, government and academia from around the world, making its networking opportunities second-to-none.

## Networking and Capacity Building via Webinars, Workshops and Forums

To make sure you're on top of rapidly changing technological developments in GNSS, PNT technologies and its utilization in the business landscape, MGA hosts webinars, regional workshops and networking forums. Allowing participants to network with the broader business, government and academic communities all the while building capacity for understanding the latest trends in GNSS.

## Infrastructure and Knowledge Sharing

To handle and evaluate the latest performance of new GNSS constellations, MGA helps obtain satellite signals by sharing and even establishing reference stations. Participants can easily evaluate and compare the performance of GNSS signals, receivers, application systems and even start their own experiments.



# MGA GOVERNANCE



## Steering Committee Members



Chairman

4 NEW MEMBERS FROM 2020



Chair		
Satoshi Kogure	National Space Policy Secretariat (NSPS), Cabinet Office	Japan
Secretary General		
Ryosuke Shibasaki	The University of Tokyo	Japan
Committee Members		
Naohiko Kotake	Keio University	Japan
Noordin Ahmad	Malaysian Space Agency	Malaysia
David A. Turner	Department of State	U.S
Rainer Horn	GNSS.asia	Germany
Nobuaki Kubo	Tokyo University of Marine Science and Technology	Japan
Suelynn Choy	Royal Melbourne Institute of Technology	Australia
Monsak Socharoentum	Digital Government Development Agency (DGA)	Thailand
Damrongrit Niammuad	Geo-Informatics and Space Technology Development Agency (GISTDA)	Thailand
Vinh The La	Hanoi University of Science and Technology	Vietnam
Michihisa Iida	Kyoto University	Japan
Victor Khoo	Singapore Land Authority	Singapore
Advisors		
Akio Yasuda	Tokyo University of Marine Science and Technology	Japan
Chris Rizos	University of New South Wales	Australia
Teruyuki Kato	The University of Tokyo	Japan
Sorawit Narupiti	Chulalongkorn University	Thailand
Noboru Noguchi	Hokkaido University	Japan

# CONFERENCE & EXHIBITION

## MGA Session

- GNSS System Provider
- GNSS Technical Updates
- GNSS Industry Application

## Cooperation between CAO & JICA

- Japan-Thailand Special Session
- Roundtable with Asia's space related government organisations
- Tech Demonstration by Japanese Companies

## Conference and Exhibition

To share the latest advancements to the GNSS and PNT landscape, the MGA conference is organized annually in a different location across the Asia-Oceania region. Delegates can also find out about new technologies, products and services, updates on R&D projects and achievements. The conference attracts participants from industry, government and academia from around the world, making its networking opportunities second-to-none.

In 2019, the MGA Annual Conference was held at the first Thailand Space Week from 27th - 30th August, bringing over 600 participants. As a side event, the Cabinet Office of Japan and GISTDA organised a GNSS roundtable with Asia's space related government organisations, Japan-Thailand Special Sessions with the cooperation of JICA and a demonstration of 15 Japanese companies.

The MGA Annual Conference will be postponed in 2020, and its online activities will be strengthened to enhance engagement from the community.





# CAPACITY BUILDING

- Regional Workshop
- Webinar
- Young Professional Forum
  - RPD Challenge
  - Ideation & Hackathon

## Networking and Capacity Building via Webinars, Workshops and Forums

To make sure you're on top of rapidly changing technological developments in GNSS, PNT technologies and its utilization in the business landscape, MGA hosts webinars, regional workshops and networking forums. Allowing participants to network with the broader business, government and academic communities all the while building capacity for understanding the latest trends in GNSS.

In 2019, GNSS Signal Reception Measurements were conducted from a moving bus, which was then utilized for the application prototype development. Additionally, a low-cost receiver demonstration was carried out in Singapore.

Online activities will be enhanced in 2020, and Introductory Courses on GNSS to Technical Level GNSS courses will be organized to cover the range of participants.



# INFRASTRUCTURE & KNOWLEDGE SHARING

- Rental of receivers
- Hardware/Software development support

## Infrastructure and Knowledge Sharing

To handle and evaluate the latest performance of new GNSS constellations, MGA helps obtain satellite signals by sharing and even establishing reference stations. Participants can easily evaluate and compare the performance of GNSS signals, receivers, application systems and even start their own experiments.

The RPD challenge, organised under the Young Professionals and Students Forum will be organised together with GISTDA. In 2020, we will be organizing online courses and demonstrations, targeting GNSS beginners from Universities with Space related courses, other Asian Universities, Industry and Government participants. At the end of the course, a hands-on workshop will be organised, and completion certificates will be issued to participants. The best team will be presented the MGA award; may the best team win!



# COLLABORATION WITH UN ORGANISATIONS



## Collaboration to achieve SDGs

### Cooperation with the International Committee on Global Navigation (ICG)

- Promotional activity of GNSS Utilization
- Biannual reporting to the ICG Providers' Meeting

### Cooperation with the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)

- MoU signed at the 75th General Assembly on 27th May 2019
- Cooperation in accordance with the Regional Roadmap of the Asia Pacific Sustainable Development Goals 2030
- Supporting perennial issues such as building resilience and/or decreasing disaster risks

### Cooperation with Space Generation Advisory Council (SGAC)

- Human resources development in the Space sector in Asia
- Promoting Space data Utilisation in Asia





# RPD CHALLENGE

**-A Multi-GNSS Asia Programme-**

Co-organised by

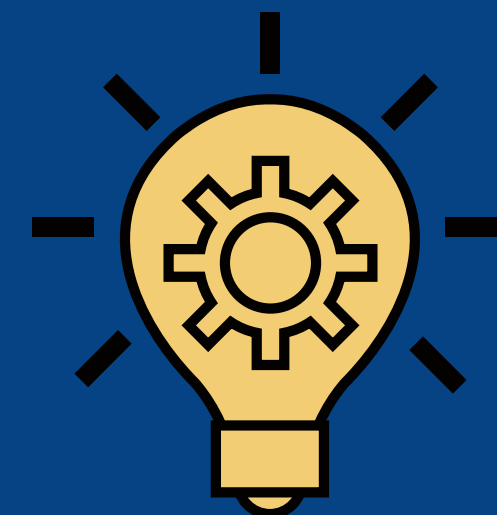


Cabinet Office

**AUGUST-DECEMBER 2020**

***SOLUTION FOR DISASTER MANAGEMENT:  
TSUNAMI/FLOODING***

- **LEARN.** Key technologies behind IoT devices
- **CREATE.** Bring your ideas to life
- **WIN.** Develop your prototype and get awarded



# BRING YOUR IDEAS TO LIFE

## - THE PROCESS

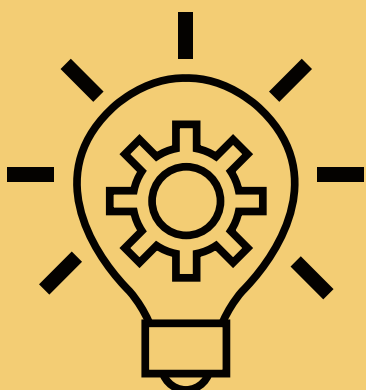
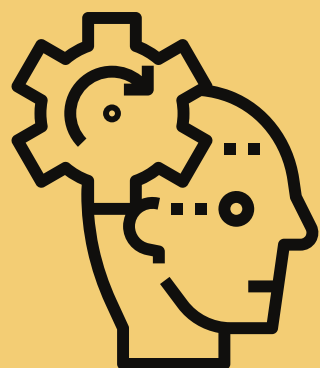
**1** What disaster can you imagine arising from floods and tsunamis in your city?

**2** What could help mitigate that situation?

**3** What infrastructure is already in place, and how could that be enhanced to become 'smarter' by combining GNSS & IoT capabilities?

**5** Bring your solutions to life by assembling the devices and making improvements through tests & demos!

**4** Work with your team mates and mentors to target the correct devices and skills to design your concept.





**HOW CAN I MAKE EMERGENCY  
SIRENS 'SMARTER' BY  
COMBINING LOCATION DATA OR  
GNSS CAPABILITIES?**

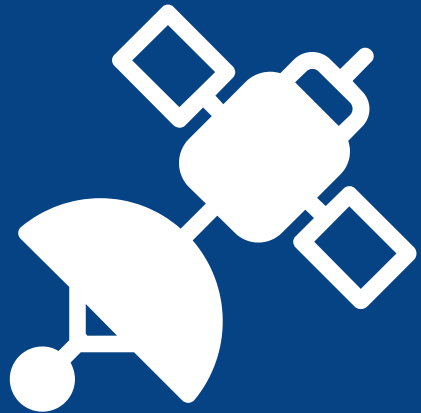
Maybe I can make my  
city safer for us citizens!

I want to design a  
system to support my  
family & friends in  
times of emergency.

**HOW CAN I UTILISE CURRENT  
INFRASTRUCTURE AND ENHANCE  
IT USING GNSS?**



# GENERAL INFORMATION



## What is the RPD Challenge?

The Rapid Prototype Development (RPD) Challenge is a hands-on Hackathon where teams will create a prototype with limited resources. Mentors will give valuable guidance and encourage participants to squeeze their brains to tackle real-life issues through creative solutions

50 teams (max) will be able to participate. Join either as a Team or as an individual!

If joining individually, you will be put in to teams by the organisers.

## QUALIFICATION

Undergraduate, Graduate Students, Researchers, Industry, Policy and Decision Makers from Asia and Oceania Regions.

\*Course participants are required to participate in all courses from Step 0 to Step4

## REGISTRATION

Register from the link below:

<https://qrgo.page.link/sFUsq>

For any inquiries, contact [secretariat@multignss.asia](mailto:secretariat@multignss.asia)

**REGISTRATION OPEN**


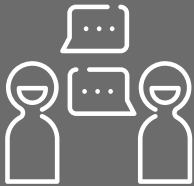
**Until**

**-7th Oct. 2020**



# PROGRAMME SCHEDULE

RPD CHALLENGE  
2020

		STEP	DATE & TIME (THAI LOCAL TIME)		COURSE OVERVIEW
 <b>WEB BASED</b>	Online Streaming	<b>LET'S GET STARTED</b> Introduction	Aug-Oct		GNSS101 *GNSS101 lectures to be released on Youtube ** Speaker Info on the following page
		<b>STEP 1</b> Define scenario	10/10	14:00-15:00	Define your scenario with your team mates
	Online Workshop		10/11	14:00-15:00	Research currently available alert systems
		<b>STEP 2</b> System design & project Planning	10/18	14:00-15:00	Learn about GNSS and how to process its data
			10/19	14:00-15:00	Design your concept based on your scenario
 <b>PHYSICAL MEETING</b>		<b>STEP 3&amp;4</b> Develop Prototype, Demonstration & Awards in Thailand	12/16	10:00-12:00	Orientation
				13:00-17:00	Prototype Testing
			12/17	10:00-14:00	Prototype Demonstration
				15:00-16:00	Presentation & final evaluation
				16:00-16:30	Award ceremony & Certificate

# MEET THE EXPERT LECTURERS

## Lecture Category

-  GNSS/GIS Technology
-  Solutions & Applications
-  Device Technology



**'Introduction of the Space Activities in Thailand'**  
**Dr. Damrongrit Niammuad**  
Director, Space Krenovation Park, GISTDA (Thailand)



**'Introduction to QZSS'**  
**Mr. Satoshi Kogure**  
Chair of MGA,  
Director, National Space Policy Secretariat (Japan)



**'Data Utilization & Applications'**  
**Prof. Ryosuke Shibasaki**  
Secretary General of MGA,  
Professor, The University of Tokyo (Japan)



**'GNSS Technology in Thailand'**  
**Prof. Chalermchon Satirapod**  
Professor, Chulalongkorn University (Thailand)



**'Introduction to HW/SW Tools for GNSS users'**  
**Dr. Dinesh Manandhar**  
Associate Professor (Project)  
CSIS, The University of Tokyo (Japan)



**'Space Data as the Solution to Societal Issues'**  
**Prof. Naohiko Kohtake**  
Professor, Keio University (Japan)



**'Current Situation of Disaster Solutions in Thailand'**  
**ACM. Somnuek Swatteuk**  
Special Expert,  
National Disaster Warning Center (Thailand)



**'GNSS Buoy Disaster Mitigation Systems'**  
**Prof. Teruyuki Kato**  
Hot Springs Research Institute of Kanagawa Prefecture (Japan)

and more..





# LET'S GET STARTED

- COURSE INTRO & LECTURES

1

## COURSE INTRODUCTION



Get your briefing on the course overview and the planned schedule for the journey ahead!

2

## GNSS 101



Learn the basics of positioning satellites and key technologies behind IoT devices through a series of webinars to spark your imagination with food for innovation from leading experts!



# STEP 1 - DEFINE SCENARIO



- 1 IDENTIFY SCENARIO
- 2 RESEARCH
- 3 SELECT



What's your scenario and where will you introduce your solution? Identify a scenario+location with your team!



What alert systems are available in that location? Do your research and define your target community.



What devices will be sending/receiving alerts? Select your components and map out your plan.



# STEP 2 - SYSTEM DESIGN & PROJECT PLANNING

- 1 LEARN
- 2 DESIGN
- 3 PREPARE



Learn about GNSS and necessary information through webinars with specialists to prepare for the challenge.



Design your concept based on your scenario, defining the necessary device, software and data-sets.



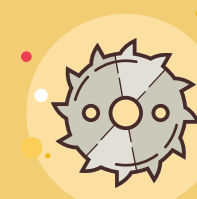
Work remotely with your team to further develop your concept and prepare for the physical meeting@SKP in Dec. 2020.



# STEP 3 - DEVELOP PROTOTYPE



- 1 ASSEMBLE
- 2 INSTALL SOFTWARE
- 3 TEST



Bring together the necessary components and assemble your device.



Install the pre-prepared software and install to the assembled device.



Check the interface and organise a series of tests to make sure the smooth running of the prototype.



# STEP 4 - DEMONSTRATION

- 1 DEMO
- 2 PRESENT
- 3 CERTIFICATE & AWARDS



Demonstrate your team's concept to the audience!



How will your solution benefit society? Convince your audience & evaluators with your concept.

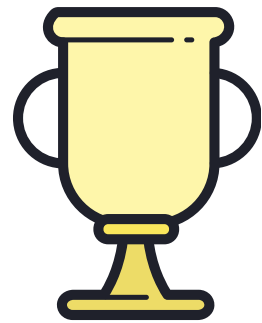


Receive your RPD Certificate and the team with the best concept & prototype will be awarded by the organisers! May the best team win!



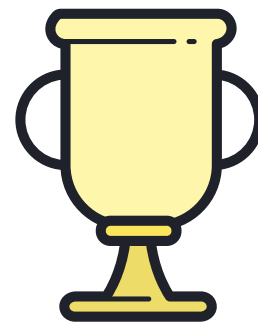


# CERTIFICATES & AWARDS



## MGA AWARD

**30,000THB** including site visit to Japan (roundtrip ticket), and support for local accommodation



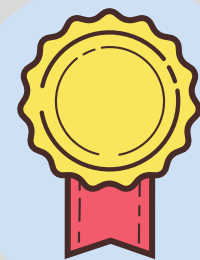
## GISTDA AWARD

**20,000THB** including site visit to Japan (roundtrip ticket), and support for local accommodation



## MICHIBIKI AWARD

Site visit to Japan (roundtrip ticket), and support for local accommodation



## SPONSOR AWARD

COMING SOON



## SPONSOR AWARD

COMING SOON



## MGA CERTIFICATE

All participants will receive a MGA Certificate to highlight their efforts through the programme. Work hard and prove your excellence!