

# SGAC

## Space Medicine & Life Sciences Project Group

### Views & Activities

Anthony Yuen, MD, BE(Hons)

Co-Lead, SGAC Space Medicine & Life Sciences Project Group

@SGAC\_SMLS | @Astromedix

[smls@spacegeneration.org](mailto:smls@spacegeneration.org) | [anthony.yuen@spacegeneration.org](mailto:anthony.yuen@spacegeneration.org)



SPACE GENERATION  
ADVISORY COUNCIL



Space  
Medicine  
Life  
Sciences

# SPACE GENERATION ADVISORY COUNCIL



Space Generation Advisory Council  
**20 years anniversary**

**10** project groups  
4 new PGs in 2019

**15,000** members

**150+** countries



**33** events  
in **26** countries

**3** global events  
**6** regional Space Generation Workshops  
**24** local events



**35** scholarships

**152** total awardees

**2<sup>nd</sup>** full-time employee hired

\* In 2019, KiboCUBE programme by JAXA, cooperated by UNOOSA, deployed the first satellite for Nepal, and decided to deploy the first satellites for Moldova and Mauritius  
\*\* On October 18th, the first all-female spacewalk was conducted from the ISS  
\*\*\* On August 16th, NASA announced that the Artemis program will see the first woman on the moon  
\*\*\*\* On April 11th and September 6th, Beresheet (Israel) and Vikram (India) spacecrafts attempted to soft land on the moon

# About SGAC

- Founded 20 years ago and UN COPUOS Permanent Observer since 2001
- Supports the UN program on Space Applications
- Vision is to employ the creativity and vigor of youth in advancing humanity through the peaceful uses of space



# Space Medicine & Life Sciences Project Group



**S**pace  
**M**edicine  
**L**ife  
**S**ciences

## Our aims

- To be a global interdisciplinary platform and “Community of Practice”
- To create tangible space applications that address terrestrial healthcare issues
- To focus on capacity building of grassroots efforts for space and health activities

<https://spacegeneration.org/projects/smls>



# 2019 Activities

- **Founded in Jan 2019**
- **166 members** from **47 member states across the world**
- **Active discussion** platform on Slack with 2700 messages in 2019
- Monthly **newsletter** to 227 subscribers
- **Twitter** reach to 316 followers
- Online **Health in Space Webinar Series** with 306 views
- Supports the **UN COPUOS Space & Global Health Working Group**



# 2019 Workshops



Working Group at **European Space Generation Workshop** sponsored by Merck



Working Group at **Space Generation Congress** sponsored by Secure World Foundation



**Space4Earth Hackathon** at **International Astronautical Congress** supported by the IAF, the Space Foundation and US Department of State



# European Space Generation Workshop



London, UK  
31 May – 1 June  
2019

## ESGW structure

- Space medical panel – space technology for global health benefit
- Space medical workshop over 1.5 days with sub-teams

## Aims

- To develop grassroots project ideas for our project groups
- Focused on space technology for global health

## Collaborators

- Imperial College London – venue and catering
- Commercial and not for profit sponsors

## Delegates

- Male / Female ratio was 11 : 11
- Students / Young Professional ratio was 12 : 10
- Global reach – 22/100 delegates from 13 member states

Imperial College  
London



MERCK





# ESGW Recommendations

## Space Medicine Projects

- Four working groups explored the following topics:
  - Monitoring of increased intracranial pressure
  - Radiation exposure reduction strategy
  - Psychology–decision making and team cohesion in space missions toolkit
  - Evaluating the next wave of transformative technologies for space medicine



## Recommendations to UN

- To investigate the application of satellite data to terrestrial medicine applications (such as population estimates, disease spread models, search and rescue support)
- To work with other UN groups to develop research projects tackling the sustainable development goals (SDGs) and accept applications or set up hackathons to solve these issues.







# Space 4 Health Hackathon



Washington D.C, USA  
21<sup>st</sup> October 2019

## Hackathon structure

- Hackathon - Space and Global Health after SGC and before IAC 2019 in Washington D.C.

## Aims

- Multidisciplinary teams
- Brainstorming novel application of space technologies for terrestrial health benefit

## Collaborators

- IAF, the Space Foundation, Airbus, and US Department of State

## Delegates

- 22 delegates



**AIRBUS**



# SGC and Hackathon recommendations

## Earth observation (EO)

- Expand the legal definitions for **open-access public EO data regulations and agreements to encompass health (acute and chronic disease)**
- Should include, but not be limited to, access to EO to improve:
  - **Prevention** → Improve **geo-specificity of health promotion campaigns**
  - **Management** → **Dynamic epidemiological mapping and response to emergent disease epidemics and pandemics**

## Space data acquisition

- To **encourage expansion of the cohort of space data acquisition services**
- To **harness evolving space data** that gives us exponentially more information with **greater geographical breadth and more technological depth** through global collaboration

## Geo-spatial data

- To **encourage a scaled usage of geospatial data for health solutions**, and the **dissemination of data-driven platforms to harness space-derived data and technology.**

## Space resource allocation

- To recommend the **direction of space resources**, such as navigation systems technology, **towards applications that improve access to healthcare**
- Especially for telemedicine access for communities that are remote or affected by natural disasters.



# 2020 vision



## Global team building

1. **Capacity build** a multidisciplinary team to harness novel means to utilise space technologies for global health benefit
2. Membership survey in progress

Find out more:

<https://spacegeneration.org/projects/smls>

@SGAC\_SMLS



## Workshops and events

1. **Open access webinars** on pan-disciplinary topics to engage a global audience
2. Widening access to young investigators from low-income and minority groups through **scholarships** to attend international conferences e.g. ICAM 2020 and IAF 2020



## Research

1. **Workshops** with expert mentors (from industry, agency and academia) early investigators to build transferable research skills
2. Post-workshop support to present and publish research
3. **Research resource repository**



## UN policy outputs

1. Guidance to transpose research outcomes into **recommendations relevant to SDGs**
2. These recommendations are reviewed and selected for presentation at UN high level forums

