

Proposal for Forming an IAA Study Group SG 4.13

Title of Study:

SMALL SATELLITE PROJECT FOR CAMEROON

Proposer(s):

(Must be member(s) of the Academy M or CM)

MR TOMUKUM CHIA

Primary IAA Commission Preference:

Commission 4 Space Systems Operations & Utilization

(From Commission 1 to Commission 6)

Commissions: 1 Space Physical Sciences, 2 Space Life Sciences, 3 Space Technology & Systems Development, 4 Space Systems Operations & Utilization, 5 Space Policy, Law & Economics, 6 Space and Society: Culture and Education

Secondary IAA Commission Interests:

(From Commission 1 to Commission 6)

Commission 6 Space and Society: Culture and Education

Members of Study Team

Chair(s):

(Must be member(s) of the Academy, M or CM)

MR TOMUKUM CHIA, IAA, Regional Secretary, Cameroon

DR. JEAN – MICHEL CONTANT, IAA, Secretary General, France

**DR. RAINER SANDAU, Chief Scientist, German Aerospace Agency,
IAA Member, Germany**

Secretaries:

Gwain ODETTE YEIH

AYEAH AUGUSTER NJUNG

NTAM FETELLA YVONNE

ELENOR GHA – AJEM FUKOIN

ROSE MUNANG NENTOH

Other Members:

(Open to members and non- members of the Academy)

Dr. Ronnie Nader Bello, ASA/T Astronaut, EAC Commander, Ecuador
Prof. Sondegam Beibam Lucas, Frm. Vice Chancellor, University of Buea, Cameroon.
Dr. Tommasso Sgobba, European Space Agency, / IAASS, Noordwijk, The Netherlands.
Pf. Victor Julius Ngoh, Deputy Vice Chancellor, University of Buea, Cameroon.
Prof. Chia Emmanuel Nges, Frm. Deputy Vice Chancellor, / Director, ASTI, University of Buea, Cameroon.
Prof. Akinyede O. Joseph, Director General, African Regional Centre for Space and Technology Education Nigeria
Prof. Fernando Aguado – Agelet, University of Vigo, Spain
Prof. Bob Twiggs, Space Science Centre, Morehead State University, USA
Prof. Mohammed Galal Mohamed, Director General, IG NCR Khartoum, Sudan
Dr. Fongot Kini-Yen Kinni, University of Buea, Cameroon
Dr. J. Ortner, EURISY, Austria
Dr. P. Lala, Czech Space Office, Czech
Mr. Kelvin Sama, V.I.O. Space Equipment, GLOCECOHADIM - AFRICA,
Mr. Shibku Jatong Frederick, Global Centre for Compliance, Hazards and Disaster Management, GLOCECOHADIM - AFRICA,
Mr. Simon J. Crouch, Surrey Satellite Technology Ltd, UK
Mr. Olaleye Salu, African Regional Centre for Space and Technology Education, Nigeria
Ms. Nkuo Aghi Mirabel, Logistics, GLOCEOHADIM Africa
Ms. Jamiat Nanteza, Makerere University, Uganda,
Dr. Ms. Burcu Dikmen, TUBITAK, Turkey
Mr. Byron Anangwe, Kenya
Mr. Raymond Yong, GLOCEOHADIM Africa
Mr. Norhizan Hamzah, Astronautic Technology (M) Sdn Bhd, Malasia
Mr. Ahmad Sabirin Arshad, Astronautic Technology (M) Sdn Bhd, Malasia
Mr. Konsey Ernest Mokom, EXPERT G.I.S., Caplat, Paris France,
Dr. EUGENIE Sansosti, USEReT, Italy
Mr. Kafain Emmanuel M., Logistics and Safety, USA
Mr. Komfum Stephen Chia, GLOCECOHADIM Africa
Dr. Halilu Shaba, ADG, NASRDA, Nigeria
Mr. Jide Ajayi Babatunde, SG, NASRDA, Nigeria
Mrs. Konsey Yvette Anith Ajame, Facilities / Relief Operations, France
Mr. Kimbi Moses Ndoh, GLOCECOHADIM AFRICA
Mr. Eugene Malgoire Njoba, Adviser, GLOCECOHADIM AFRICA
Mr. Fangyong Patrick Young, Adviser, GLOCECOHADIM AFRICA
Ms. K. DELphine Yei, GLOCECOHADIM Africa
Mr. Timothy K. Gaforbe, GLOCEOHADIM Africa
Mr. Ngohchia Ferdilis, CADVA, Cameroon
Mr. Mawain Valentine, GLOCEOHADIM Africa
Ms. Ngo Eog Augustine Dorine, GLOCEOHADIM Africa

Mr.Ngassam Nganpet,GLOCEOHADIM Africa
Mrs. Munang Rose Nentoh,GLOCEOHADIM Africa
Mr.Boyo Valentine,Expert,Cameroon
Mr,Wultof John,GLOCEOHADIM Africa
Mr.George Ngeh,GLOCEOHADIM Africa
Mr.Mbeng Gilbert L.,USA
Mr.Mamfe Vaatyough H,NASRDA,Nigeria
Mrs.Chiabi Imma-Relindis Ncham,GLOCEOHADIM Africa
Mr.KANIGHA C.Christopher,Expert,GLOCEOHADIM Africa.
Mr,FOH KUM,USA
Ms.Munang Nange,GLOCECOHADIM AFRICA
Mr.Ignatius Gwain,Technican,GLOCEOHADIM Africa
Mr,Njung Solomon,Adviser,GLOCEOHADIM Africa
Mr.Michel Wainchom,GLOCECOHADIM AFRICA
Mr.Kenneth Aloah,Adviser,GLOCEOHADIM Africa
Mrs.Dorothy Nanain,LOGISTICS,GLOCEOHADIM Africa
Ms.AMINA ASHING A, GLOCEOHADIM Africa
Mr.Nkwain Protus,Adviser,GLOCEOHADIM Africa
Mr,AJOU DON,Sho,ANIMATOR,GLOCECOHADIM Africa

Short Description of Scope of Study

Overall Goal:

(Expected scientific or practical benefit of the study group's efforts)

The Project will enable Cameroon to have the capacities to design,manufacture ,and launch their own satellite for usage and will provide additional more satellites to other interesting countries in Africa. This is a pilot project in the Central Afican non space faring countries that would foster the initiation of a joint venture in the region.The project will take advantage of the current start-of-the-art technologies used in modern small satellites involving a multi-spectral earth imaging system (red,green,blue,and near infrared bands) with a resolution of 50m and panchromatic earth imaging system with 20m resolution installed on the satellite.

The overall goal is to enable and empower Cameroonians and Africans to gain expertise in satellite design,satellite integration and testing,and satellite operations.Additionally,a satellite design Office with all the necessary hardware and software (I.e.design and analysis tools) shall be established and it will lead to the creation of a ground segment for receiving,transmitting data/information,monitoring ad traking the satellite,thereby opening the way for the CREATION OF THE CAMEROON SPACE AGENCY,-CSG-ASC,AGENCE SPACIALE CAMEROUNAISE ,BY November,29,2012.

A 210 man – months on-the-job training is required and requested in various study areas such as satellite systems engineering,

satellite control, satellite structural and thermal design, satellite communication systems, computers and digital electronics and satellite mover systems. Research is needed at various stages in the development of state-of-the-art payload for future small satellites for EO, DRRS and SD, to trigger interest in research and in the development of small satellites related technologies.

The study is to advance and provide a nation-wide information system for disaster management, sustainable resource re-allocation and sustainable growth of the Cameroon economy and the region.

It will provide early warning systems for road, air and sea transport safety. Tracking of events would be facilitated and managing disasters in Cameroon.

Government, academicians, military, commercial, industries, transporters, cartographers, geologists, meteorologists, institutions, universities, schools and colleges, business community, farmers, NGOs, CIGs, including young researchers, professors, navigators, pilots, farmers, vulnerable and outreach groups, astronautics and space scientists, will be at the fore front of this change and to be provided with low cost access to in-house developed technology which is affordable and adequate to today's development and civilization.

Small satellites are easily used for capacity building because they are cheap, and easy to use, with frequent launch opportunities, providing a variety of missions, with a big payload on education which are supported by miniaturization, and independence. They have a direct influence and impact on society by enabling them to do more with less in addressing local, national, regional and international issues.

It also allows for constellation leading to peaceful co-existence in addressing global problems. Water points in Cameroon will be digitized, and an evaluation of the state of the land surfaces including internal water reservoirs, land monitoring in an attempt to re-address the problems of natural resource control, flood control, desertification mitigation, and re-resilience the communities to disasters.

ULTIMATELY, WE CAMEROONERS HAVE THE UNIQUE OPPORTUNITY IN THE REGION TO DESIGN, MANUFACTURE, LAUNCH, CONTROL, AND USE SPACE APPLICATION FOR SUSTAINABLE DEVELOPMENT, DISASTER RISK REDUCTION AND FOR AN EDUCATIONAL VALUE FOR INSPIRING NEW GENERATIONS FOR THE FUTURE.

WE CAMEROONIANS HAVE TO BUILD OUR OWN CASE FOR OUR OWN SATELLITE. THE TECHNOLOGY IS AVAILABLE, CHEAP, EASY AND AFFORDABLE. WE SHALL JOIN OUR HANDS IN GETTING THE SATELLITE LAUNCH SOON. SPACE IS YOURS TO DISCOVER AND EXPLORE, AND IT REMAINS OUR RESPONSIBILITY TO TOUCH THE STARS AND TO DO IT BETTER THAN ONLY ORBITING THE SUN.

WE MUST REACH OUT TO THE STARS FOR EXOPLANET MISSIONS SEARCHING FOR LIFE SIGNATURES IN THE UNIVERSE, WE ARE NOT ALONE - ARE WE ALONE?.

Intermediate Goals:

To create a resource base and knowledge portal for today's, present and future scientists and researchers with the endurance, capabilities and methods that will empower and enable them to perform and utilize data, and satellite information successfully.

To understand the current status of satellite technology in Cameroon, West and Central Africa .

To review the aerospace and electronics industry capabilities in Africa

To search for an international contractor to design, build and launch a small satellite with proscribed missions and within Africa.

To promote research and development on RS, EO, Small Satellite design dynamics and control, space physics, space weather and in the exploration of deeper space.

To assist Government and Policy makers on the design, launch and use of small satellites.

To assist in the implementing best practices that work and identify those that do not work.

Finally, the study will put Cameroon on the fore front of CHANGE in Africa and other Non - Space – Faring - Nations in a position to design, manufacture and operate a HOME MADE SMALL SATELLITE FROM Cameroon ,AFRICA.

Methodology:

(Email works, workshops, stand alone conferences, interim publications, etc.)

Set up of follow committees to analyse all relevant issues ,(past or present) information on small satellite technology. Study the different aspects and technology involved, discuss at meetings, conferences, forums, seminars, workshops and trainings. Organize and participate at local, national, regional and international events including expert meetings, panel discussions, conferences, forums, workshops, seminars, symposiums, on-line conferences and e-learning. To organize another International Conference on Small Satellite in Yaounde, Cameroon, in November, 2012.

Time Line:

(Cannot exceed three years)

Initial outline was developed During the First IAA Regional Meeting/Symposium in Yaounde, Cameroon, 22-24, May, 2009, and formation/constitution of the study group members, Presented at the 3rd IAA African conference in Abuja, Nigeria, 25, November, 2009, First Draft Position paper presentation, Riga, Latvia, July, 2010, Second draft, Paper presentation at the IAC Congress, Prague, Czech, October, 2010, Third Draft , Paper presentation, Space Submit in USA, November, 2010. Final Position paper Presentation, IAC Congress, South Africa, 2011. RECORD Status, Final updates for Publication to be presented at the IAA Conference in Yaounde, Cameroon, November, 2012.

Final Product (Report, Publication, etc.):

Report to the Government of the Republic of Cameroon, Publication at the IAA ACTA ASTRONAUTICA, Global Centre for Compliance, Hazards and Disaster Management-GLOCECOHADIM Africa, National Journals, University Press, Book shops, Universities, Colleges and Schools, Space Agencies, Institutions, NGOs, Researchers, Commercial Setors, Researchers, Academicians and policy makers, Space Equipment manufacturing industries.

Target Community:

Government of the Republic of Cameroon, Central Africa Region, United Nations, Academicians, Universities, Polytechniques, Space Agencies, Industries, NGOs, CIGs, Politicians, Lawyers, Researchers, Astronauts, Business community, Policy makers, Transporters, Professors, Researchers, Organizations, Institutions, Space Equipment manufacturing industries, and Farmers.

Support Needed: YES

Support highly needed for logistics, and details to be provided subsequently.

NOTE:

The study requires the necessary inputs from space scientists and researchers, professional knowledge, creating a web link for on line activities, and to organise several meetings, conferences as well as participating in local, regional and international events. Much documentation and secretariate work would be made particularly as the studies is taking place in a Non Space- Faring country, Cameroon.

Potential Sponsors:

The International Academy of Astronautics, IAA, partners, Global Centre for Compliance, Hazards and Disaster Management, GLOCECOHADIM AFRICA, Cameroon Office, Government of The Republic of Cameroon, United Nations, Space Agencies, MTN, Cameroon, Orange, Ringo Cameroon, Guinness Cameroon, Brasseries du Cameroon, Academicians, Researchers, IAA, Space Scientists, Engineers, Astronauts, Universities, Business communities, and Industries.

**To be returned to the IAA Secretary General Paris by fax: 33 1 47 23 82 16 or
by email: sgeneral@iaaemail.org**

Date:

(No Signature required if document authenticated).

Follow-up Section for IAA use only

Initial Phase
Application received:
Commission Approved:
SAC Approved:
Web Site Section opened:
Members Formally Appointed by IAA:

Final Phase
Peer Review by Commission Completed:
Recommended by the Commission:
Final Report Received:
SAC Approved:
BOT Accepted:
Publisher Selected:
Study Published: