

International Cooperation for Space Exploration (1)  
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Author: Mr. Jean BLOUVAC  
Centre National d'Etudes Spatiales (CNES), France, jean.blouvac@cnes.fr

ISRO CNES COOPERATION FOR GAGANYAAN AND PERSPECTIVES

**Abstract**

The presentation describes the ISRO CNES human spaceflight cooperation in the frame of Gaganyaan Indian launch in 2022 and further perspectives.

ISRO has got involved in the human spaceflight debate even before intending to send its first astronaut into space from India. India will be involved in the major international space exploration programmes of the future notably future orbital bases as well as outposts on the Moon and Mars. GAGANYAAN is only a first step. ISRO has announced that it intends to develop a space station.

France has extensive experience in human spaceflight. Ten French astronauts have been to space. CNES has developed highly sophisticated facilities in this field, such as the CADMOS, and NOVESPACE.

Crewed space exploration can serve as a unique model for cooperation between all humankind, transcending political divides and France is highly promoting and supporting the idea of international cooperation in cooperation. France envisages space exploration as an international venture, implemented through a balanced, interdependent and interconnected cooperation among mutually dependent partners and as a peaceful common adventure of the whole humankind. CNES has also every confidence in ISRO's ability to become a prime player of future crewed space exploration. CNES's teams with the help of ESA/EAC are then excited and motivated at the prospect of working with their Indian friends to achieve these historic feats.

The intended partnership with a service offer from CNES to ISRO comprises expertise, capacity building services and procurements for astronaut medical selection and for operational space activities. It includes technical and medical training of Indian personnel within CNES Premises and also at ESA EAC in Cologne. This training will be dispensed by experts at the MEDES space medicine and physiology institute in Toulouse and by the teams at ESA's astronaut training centre in Cologne. Indian surgeons will be trained during operational medicine service sessions on an in-orbit medical system, space-related medications and medicine.

Complementary, Indian astronauts will be using several French devices during the GAGANYAAN mission for health-monitoring purposes. CNES is willing to collaborate with India's specialists to develop further equipment tailored to the specific needs of ISRO's future Indian missions.

Our support for GAGANYAAN is just a first step in a partnership that we want to establish over the long term, as we have done for climate and launchers. CNES is keen to help ISRO develop its expertise, its initiatives and its influence in the domain of human spaceflight.