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## France-India space cooperation Agreements signed on future launchers and lunar exploration

**CNES is accompanying India's space innovation efforts through cooperation with ISRO on future launch vehicles and by partnering the Team Indus lunar mission.**

On the occasion of the visit to Bangalore of Jean-Marc Ayrault, France's Minister for Foreign Affairs and International Development, CNES President Jean-Yves Le Gall and ISRO Chairman A.S Kiran Kumar signed an agreement to form a joint working group on space launcher technologies. French-Indian cooperation in the field of launchers traces its heritage back to the 1960s with the launch of sounding from India and production under licence of Viking engines. Recent space cooperation between the two nations has focused on developing and operating the Megha-Tropiques and SARAL-AltiKa climate-monitoring satellites. The decision to establish engineering exchanges to develop future generations of launchers is now set to inject new momentum into their historic and particularly fruitful partnership, combining their power to innovate. ISRO engineers will receive training at CNES and a technical working group will gauge synergies between ongoing developments and look at proposed future concepts, especially in the domain of reusable launch vehicles.

India's frugal space engineering concept is also underpinning efforts by new private space players in India, with Bangalore establishing itself after California as one of the most promising nerve centres of NewSpace. It is in this context that Jean-Yves Le Gall and Rahul Narayan, Chairman & CEO of Indian start-up Axiom Research Labs, signed an agreement under which CNES will be taking part in the Team Indus mission to land a module and two rovers on the Moon in January 2018. CNES will supply two latest-generation cameras developed in partnership with French firm 3DPlus, employing technologies in which France is a world leader. The CASPEX cameras (Colour Cmos Camera for Space Exploration) will be the eyes of the Indian rover. This first private lunar landing will also mark a first for French technologies on the Moon. Applying short development cycles and highly innovative methods, Team Indus is participating in the GoogleX-Prize that will go to the first private player to land a module on the Moon, drive a rover on its surface and send data collected back to Earth.

After the visit, Jean-Yves Le Gall commented: "The agreements we have signed today extend French-Indian space cooperation to future launchers and planetary exploration. To stay competitive, we need to combine the best innovations and that is the goal of CNES's partnership with Indian space players. In this regard, I would like to thank Jean-Marc Ayrault, our Minister for Foreign Affairs and International Development, for honouring us with his presence and thus marking the French government's support for this exceptional cooperative undertaking."

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