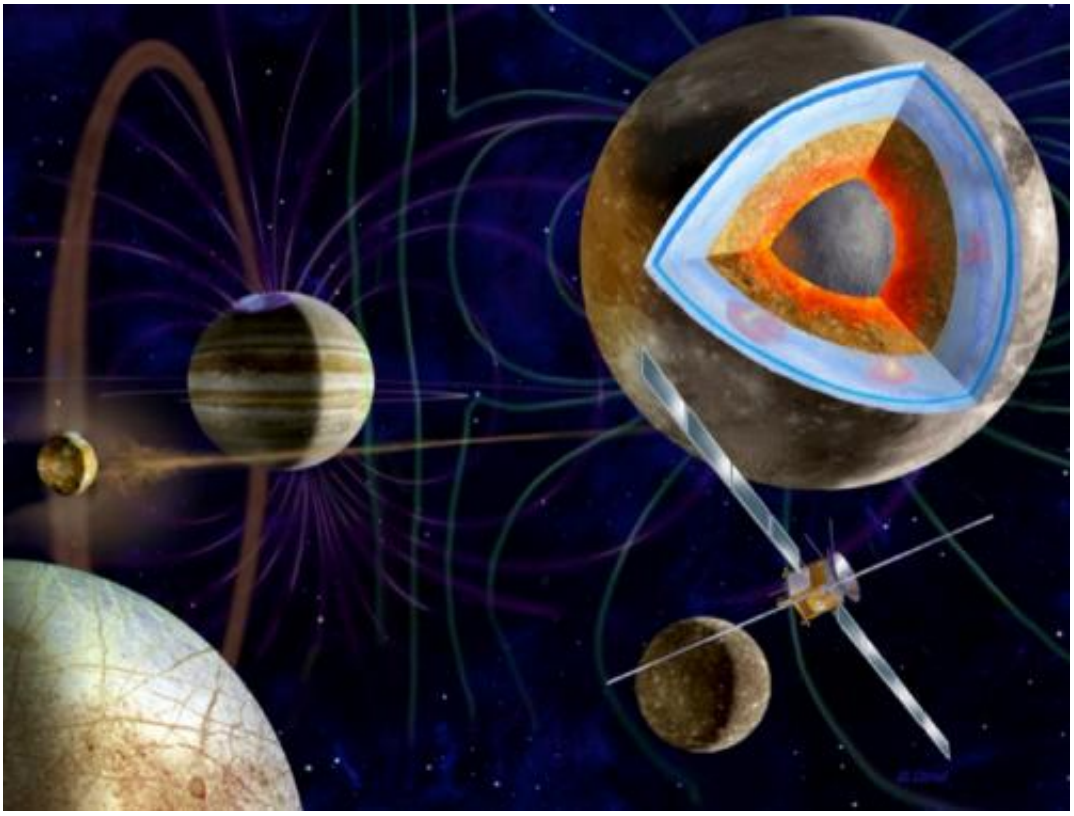
JUICE to Jupiter could be ESA's next major science mission

April 19 2012, By Nancy Atkinson



Artist concept of JUICE, a Jupiter moons orbiter mission. Credit: ESA

The Science Programme Committee of the European Space Agency has recommended that the next major space mission for ESA be an orbiter mission to the Jupiter system named JUICE, the JUpiter ICy moons Explorer. This mission would launch in about 2020 and explore potentially habitable moon around the gas giant, Callisto, Europa, and

Ganymede.

This recommendation is not the final decision, but puts JUICE as a front-runner for when representatives of all 19 ESA member states meet to discuss the various mission candidates on May 2, 2012

Other missions being considered are ATHENA , the Advanced Telescope for High-ENergy Astrophysics (originally called IXO) – which would be the biggest X-ray telescope ever built — even though smaller in scope than the original IXO) and study the extremes of the Universe: from black holes to large-scale structure ; and NGO, the New Gravitational wave Observatory, a smaller version of LISA, a space-borne gravitational wave detector which would place a three satellites in orbit.

“This is a big blow to space based astrophysics,” wrote European science blogger Steinn Sigurdsson, who added that rumors are floating around that the NGO science team may be disbanded immediately, even though the new report issued by the Science Programme Committee is just a recommendation.

Planetary Society blogger Emily Lakdawalla also commented on the selection — if it is accepted — “represents a big win for planetary science and a big loss for space-based astrophysics in Europe. Which is, one can’t help but notice, opposite to what the currently-proposed NASA budget represents.”

Whatever mission is chosen for the next flagship science mission, ESA knows it will likely have to do it on their own.

In March 2011, NASA informed ESA that that it was highly unlikely that they could become a major partner in an “L” (large) mission for the 2020 timeframe.

"Given the resulting impossibility to continue with the mission concepts defined in the Assessment Phase, the Executive terminated the relative activities for EJSM-Laplace, IXO, and LISA, and informed the members of the three Science Study Teams of the termination of their mandate," the new report says. "To preserve as much as possible the investment of the scientific community and of the Member States in the study activities of the L mission candidates, the Executive implemented a recovery action in the form of a fast-track re-formulation activity. The aim has been to ascertain if and which of the science goals of the L mission candidates could be implemented in the context of a programmatically feasible European-led, or potentially European-only mission."

With NASA no longer in the mix, ESA knew they would have to descope their proposed missions, and with costs needing to be at least 20% less than originally planned. "Needless to say, missions within these constraints must be significantly less complex than the original L mission concepts selected in 2007," the report says.

ESA's science goals for the front-runner JUICE mission is to visit the Jupiter system concentrating on the characterization of three possible ocean-bearing worlds, Ganymede, Europa and Callisto as planetary objects and potential habitats and on the exploration of the Jupiter system considered as an archetype for gas giants in the solar system and elsewhere. The focus of JUICE is to characterize the conditions that may have led to the emergence of habitable environments among the Jupiter's icy satellites.

Provided by Universe Today