SCIENCE

SPACE MISSION SENEGAL

Written and directed by **Ruth Berry**
Executive producers: **Susanne Lummer, Sabine Holzer**

1×50 min.
4K, 5.1 and Stereo

TERRA MATER STUDIOS

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This is a story of astronomy and astronomical missions. Of a NASA space mission called Lucy set to discover the origins of our solar system, and an earthly mission to build a space agency in one of the world's poorest countries.

The missions are linked by Senegalese astronomer Maram Kaire. He wants to use space science to solve Senegal's development challenges, through education, satellite technology and an observatory that can attract international research.

Maram moves one step closer to his goals when he is chosen by NASA to lead a team of African, European and US scientists on a crucial data collecting operation for the Lucy mission.

Lucy will travel to a group of mysterious asteroids in Jupiter's orbit believed to be remnants from the formation of Saturn, Uranus, and Neptune, over 4 billion years ago. They may also hold answers to the beginnings of Earth.

Lucy must locate and photograph seven of the asteroids. This requires tremendous precision which can only be achieved by knowing as much about the asteroids as possible before the craft reaches their orbit.

Without leaving Earth scientists can calculate the size, shape, and trajectories of asteroids when they occult, or eclipse, distant stars.

Maram and his teams' mission is to record the occultation of target asteroid Orus. After three days of rehearsals, ten telescopes will be set up along a 100 km path and aimed at the distant star. The crews wait anxiously for its light to blink out as Orus crosses its path. It will last for just three seconds.

At the same time, on the other side of the Atlantic, the very mission they work for is about to launch from Cape Canaveral.

Weather will be the deciding factor. Bad weather could delay the launch of Lucy and mask the occultation from the earth-bound telescopes.

A successful occultation will help Maram bring astronomy and space science to his country through international collaborations. But he still faces a unique challenge: 95% of the people in Senegal follow Islam, and most do not embrace modern astronomy. If he can show the Sufi Brotherhood leaders that science can help them predict Ramadan, he may take his quest one step further.

He reminds them that from the 9th century Muslims developed and used astronomy in the service of Islam; to predict prayer times, the direction of Mecca and the lunar calendar. Centuries later their discoveries were assimilated and improved on by Renaissance astronomers.

Enthralling science, a nail-biting mission, and a unique story of how looking to the stars can change the fortunes of a developing African country like Senegal.

A co-production of Terra Mater Studios and WGBH/NOVA

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