

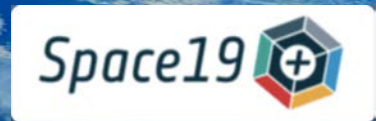


Exploring the Universe: Big Data and the ESA Scientific Programme

Günther Hasinger, ESA Director of Science

Big Data From Space (BIDS'19), München, 19.2.2019

Towards



ESA UNCLASSIFIED - For Official Use

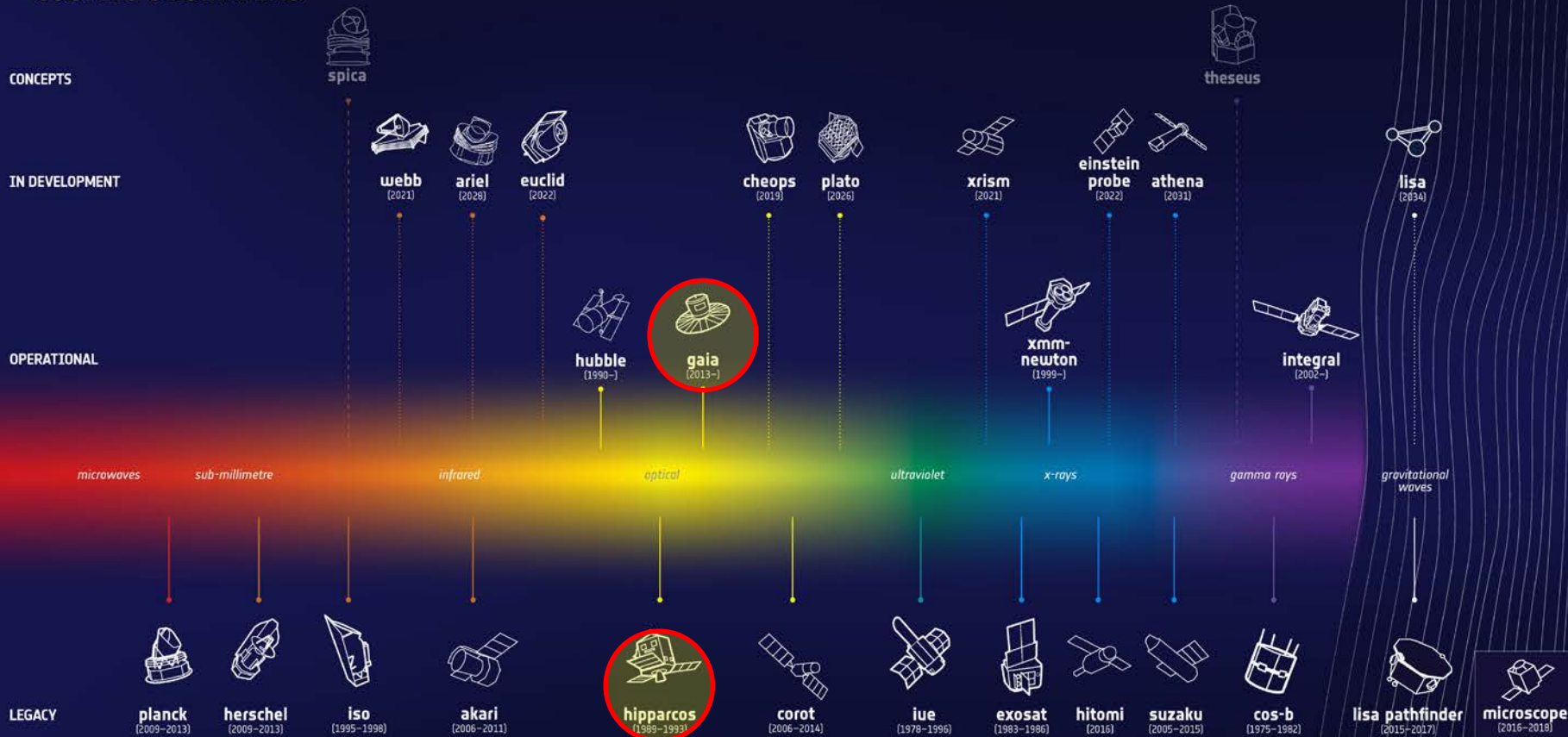


European Space Agency

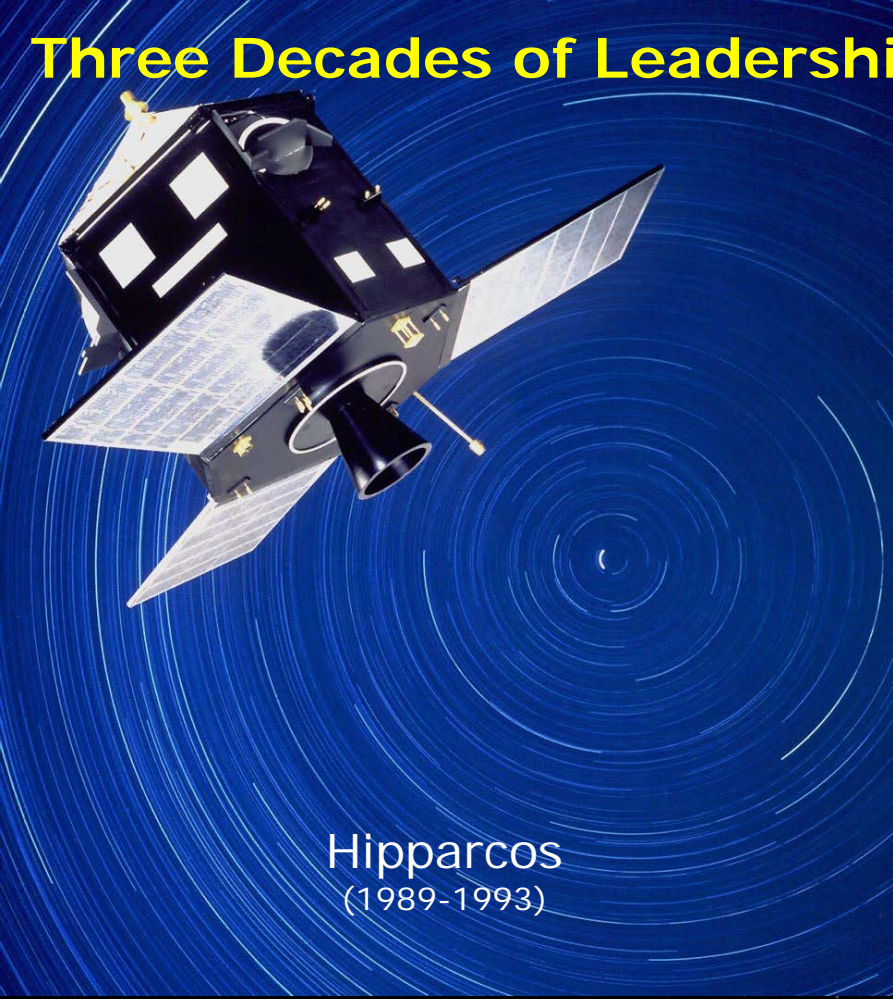
The ESA Fleet for Astrophysics



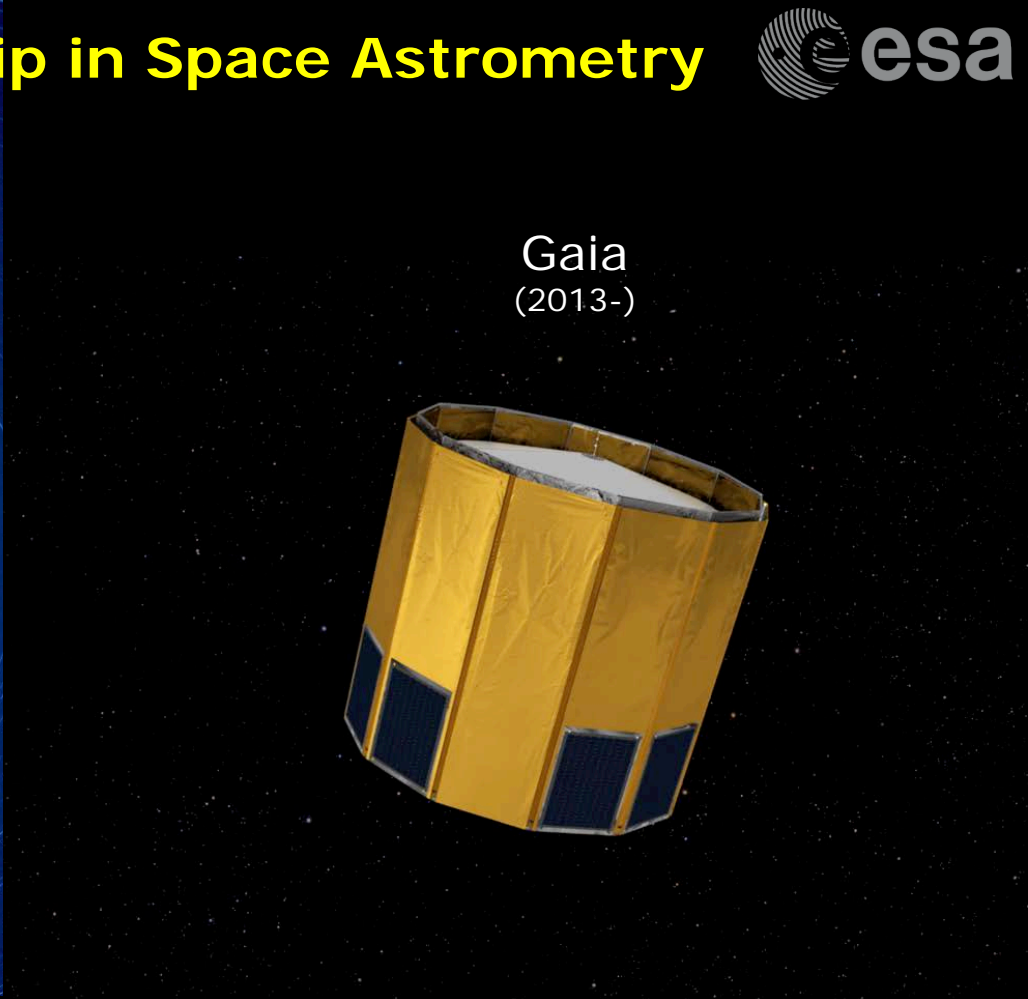
→ COSMIC OBSERVERS



Three Decades of Leadership in Space Astrometry



Hipparcos
(1989-1993)

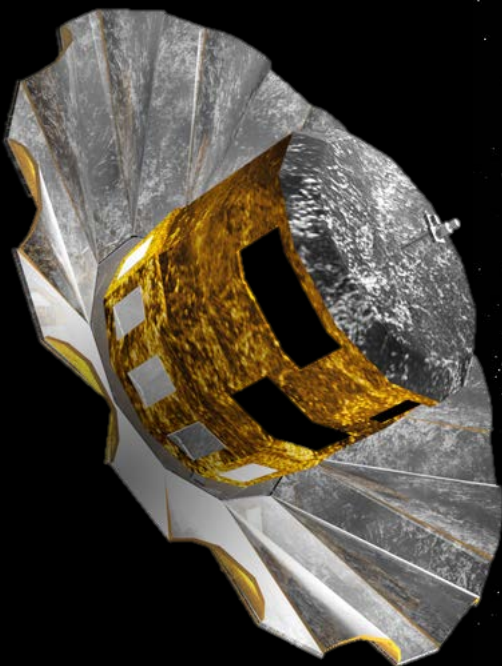


Gaia
(2013-)





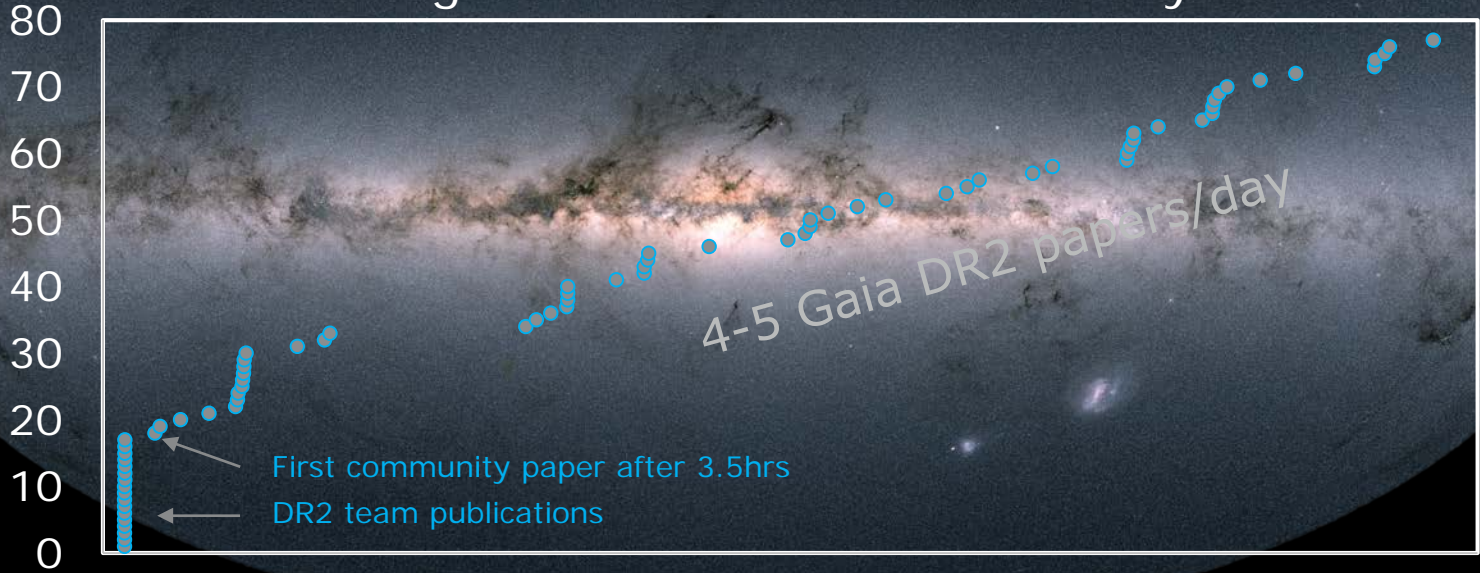
Gaia Data Release 2: 25. April 2018, ILA Berlin



~13000 Gaia DR2 users peak



Redefining the foundations of astronomy!



4/25/18

4/30/18

5/5/18

5/10/18

Big Data in Cosmic Simulations

The Illustris Project: www.illustris-project.org

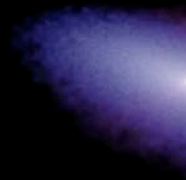


Detailed Galaxy Merger Simulations

T = 0 Myr



Stars



T = 0 Myr

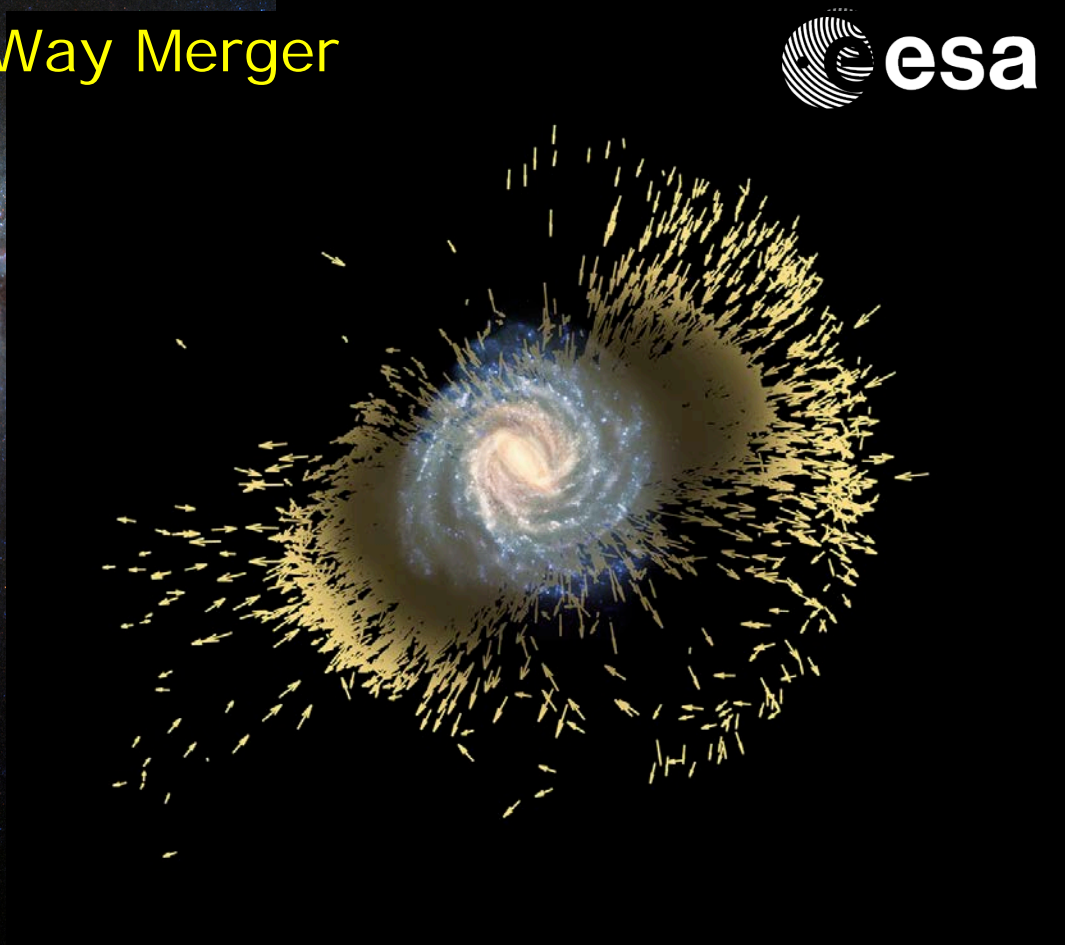


Gas

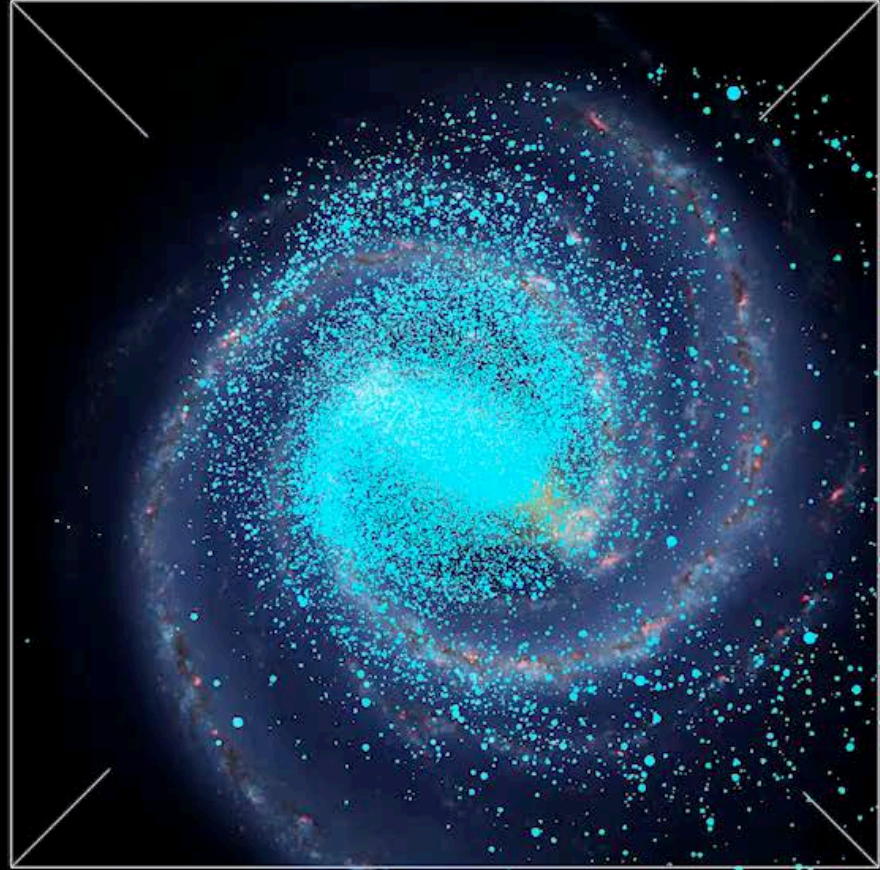


Tiziana di Matteo, Lars Hernquist, Volker Springel et al.

Gaia Milky Way Merger



Gaia-Enceladus Simulation

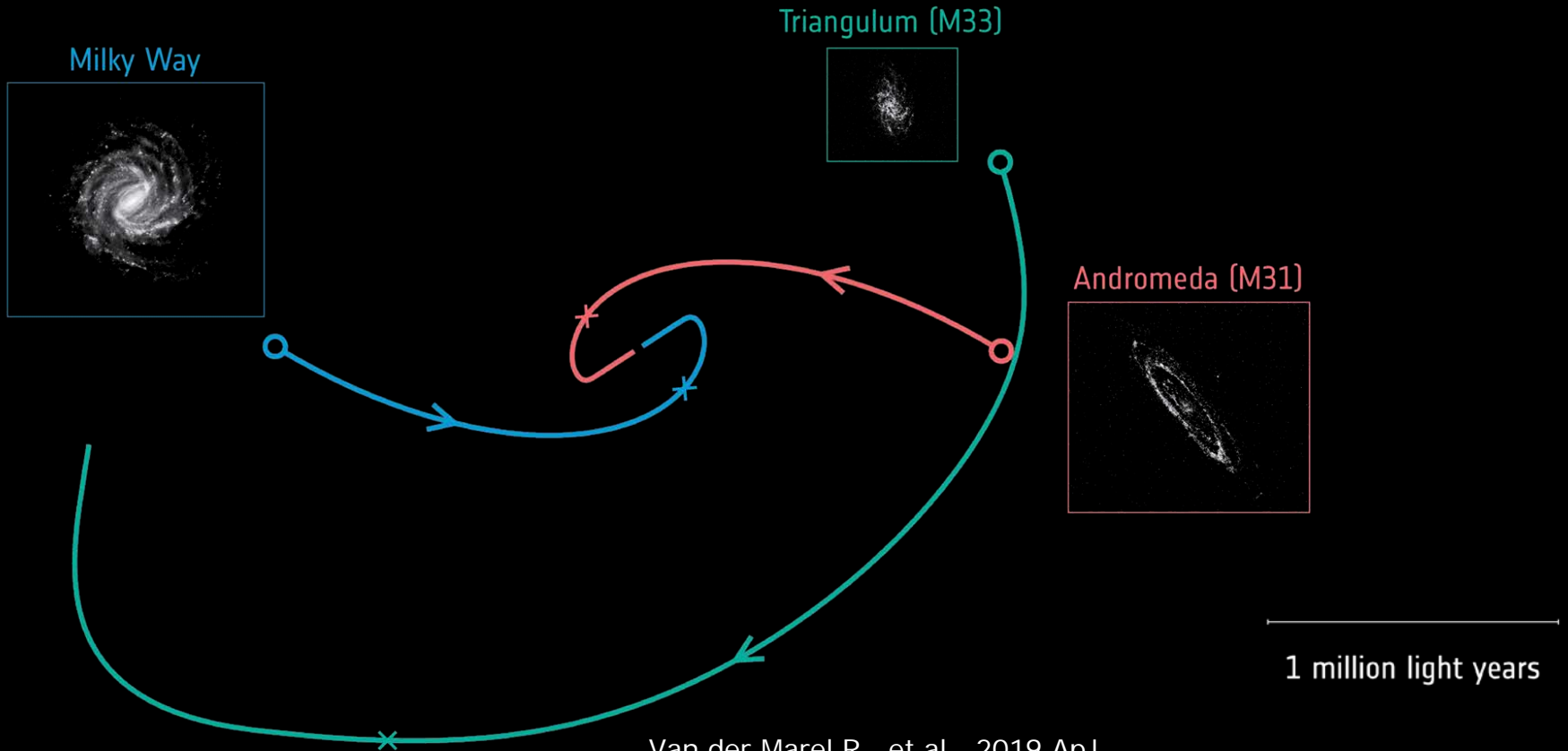


Helmi, A., et al., 2018, Nature



Fate of the Milky Way and Andromeda

- now
- > in 2.5 billion years
- ✕ in 4.5 billion years



**Thank you
very much!**

