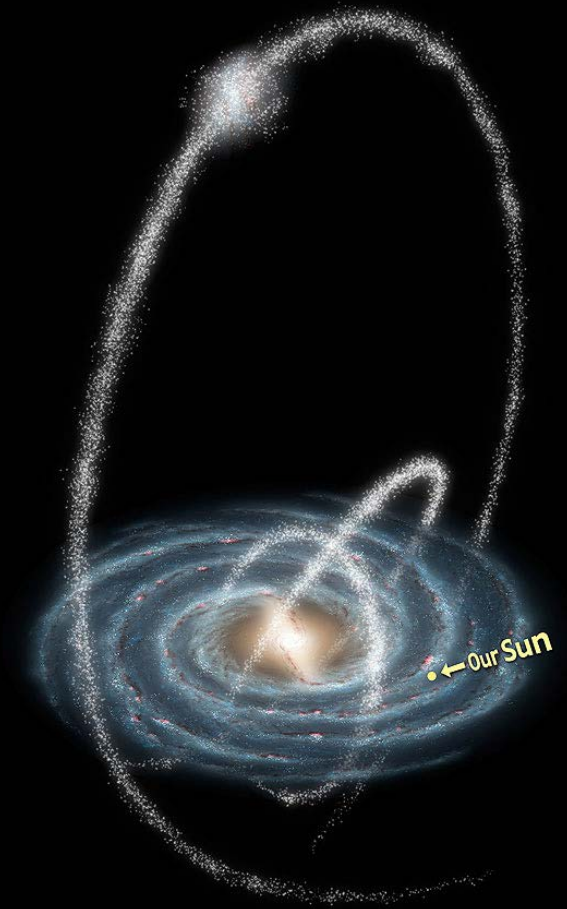


An introduction to
Galaxy Mergers

Zach Meisel

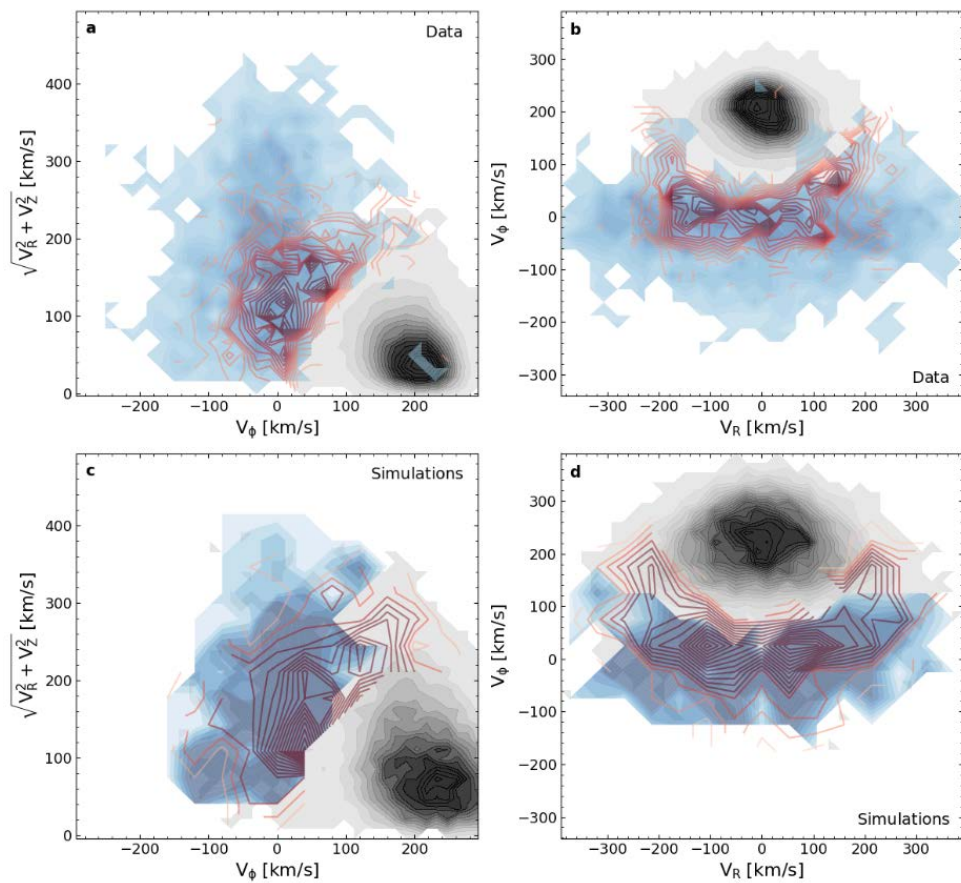
Ohio University - ASTR1000

Minor vs major mergers

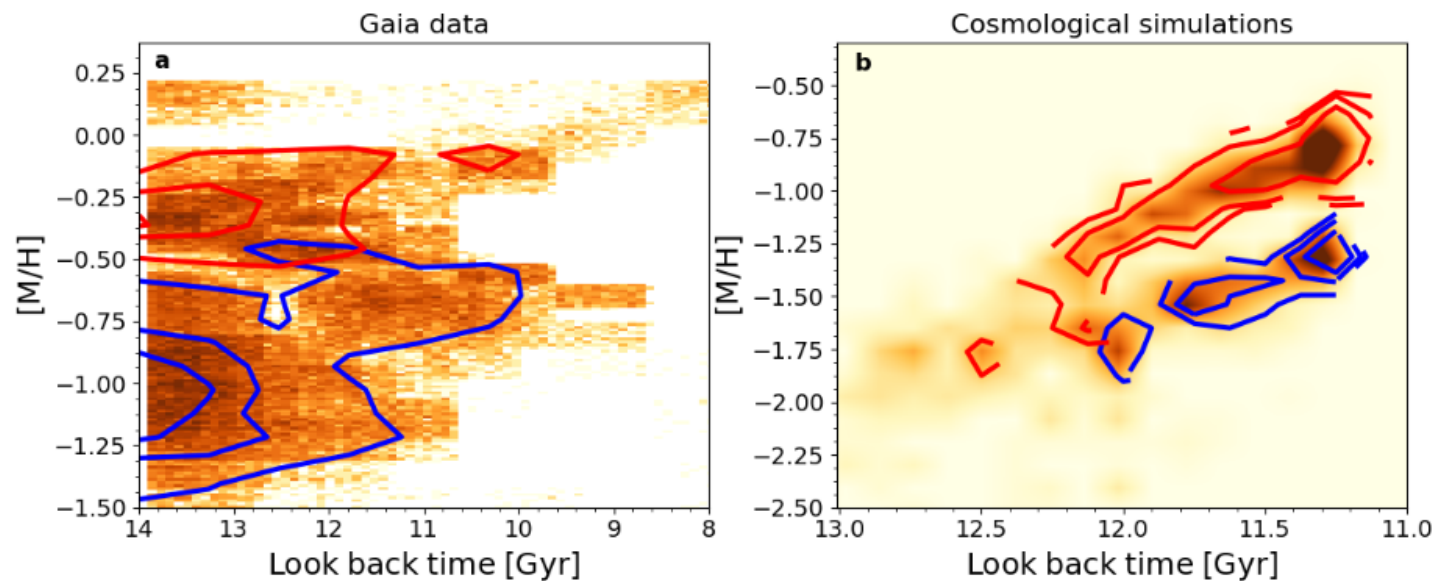


Local evidence for a minor merger

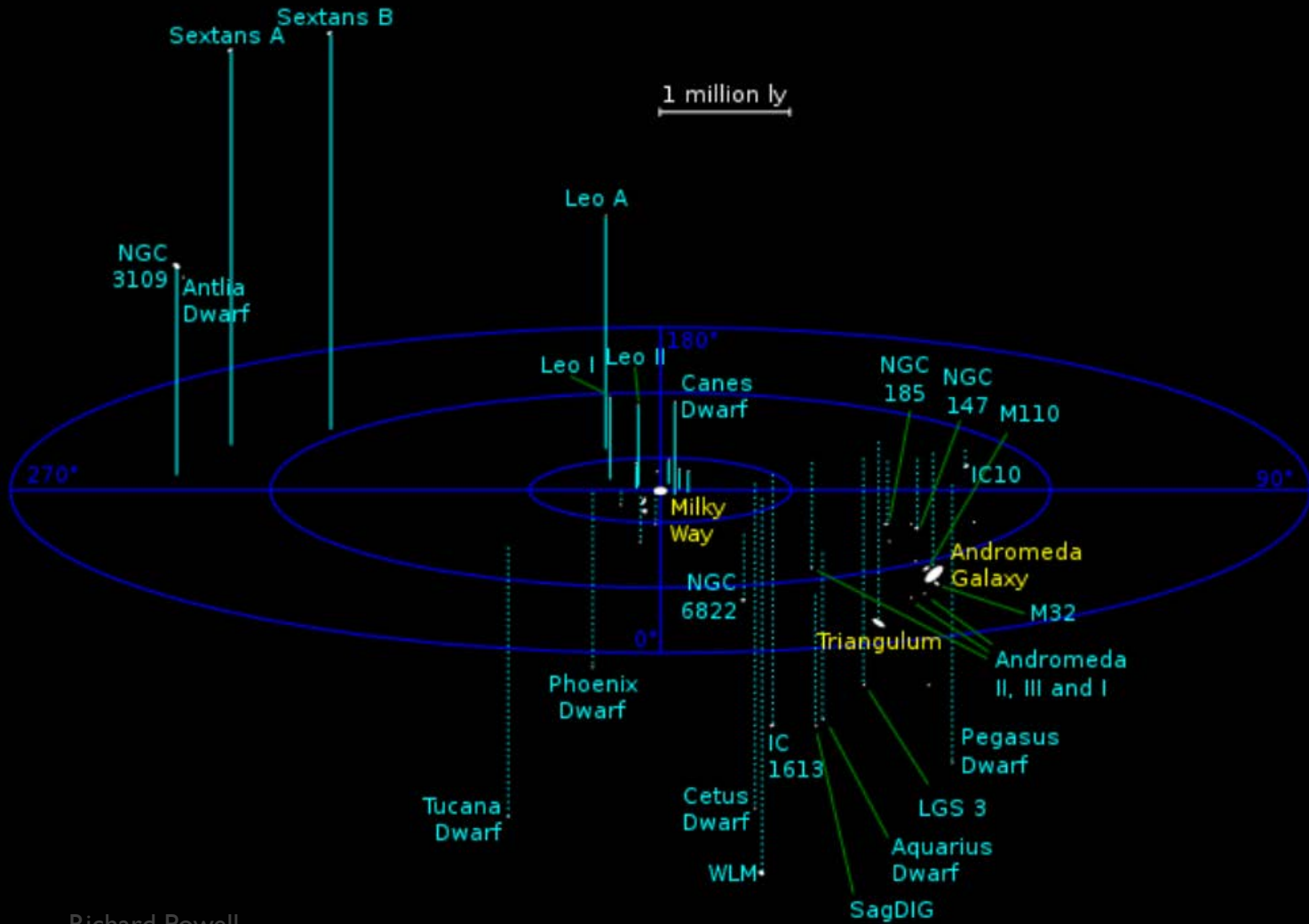
Stellar velocities:



Stellar chemical signatures:



Local evidence for a major merger



Richard Powell



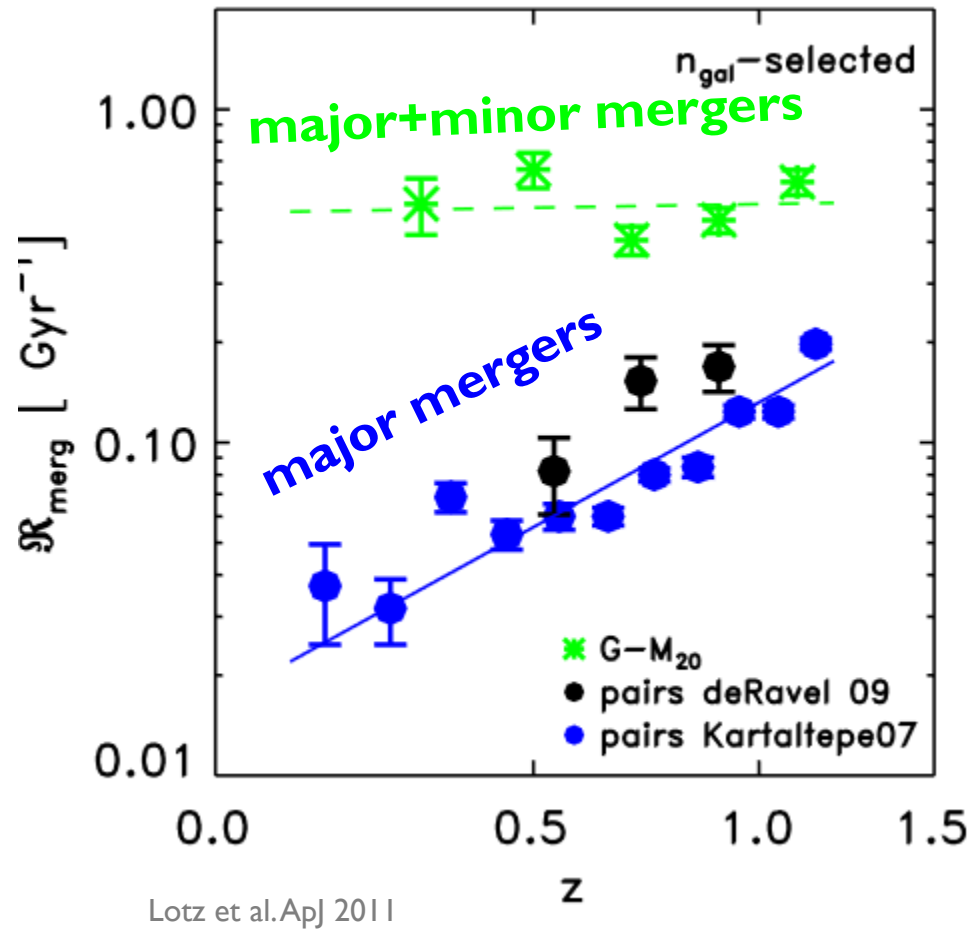
NASA; ESA; and F. Summers, STScI; Simulation Credit: NASA; ESA; G. Besla, Columbia University; and R. van der Marel, STScI

Lots of other circumstantial evidence for mergers



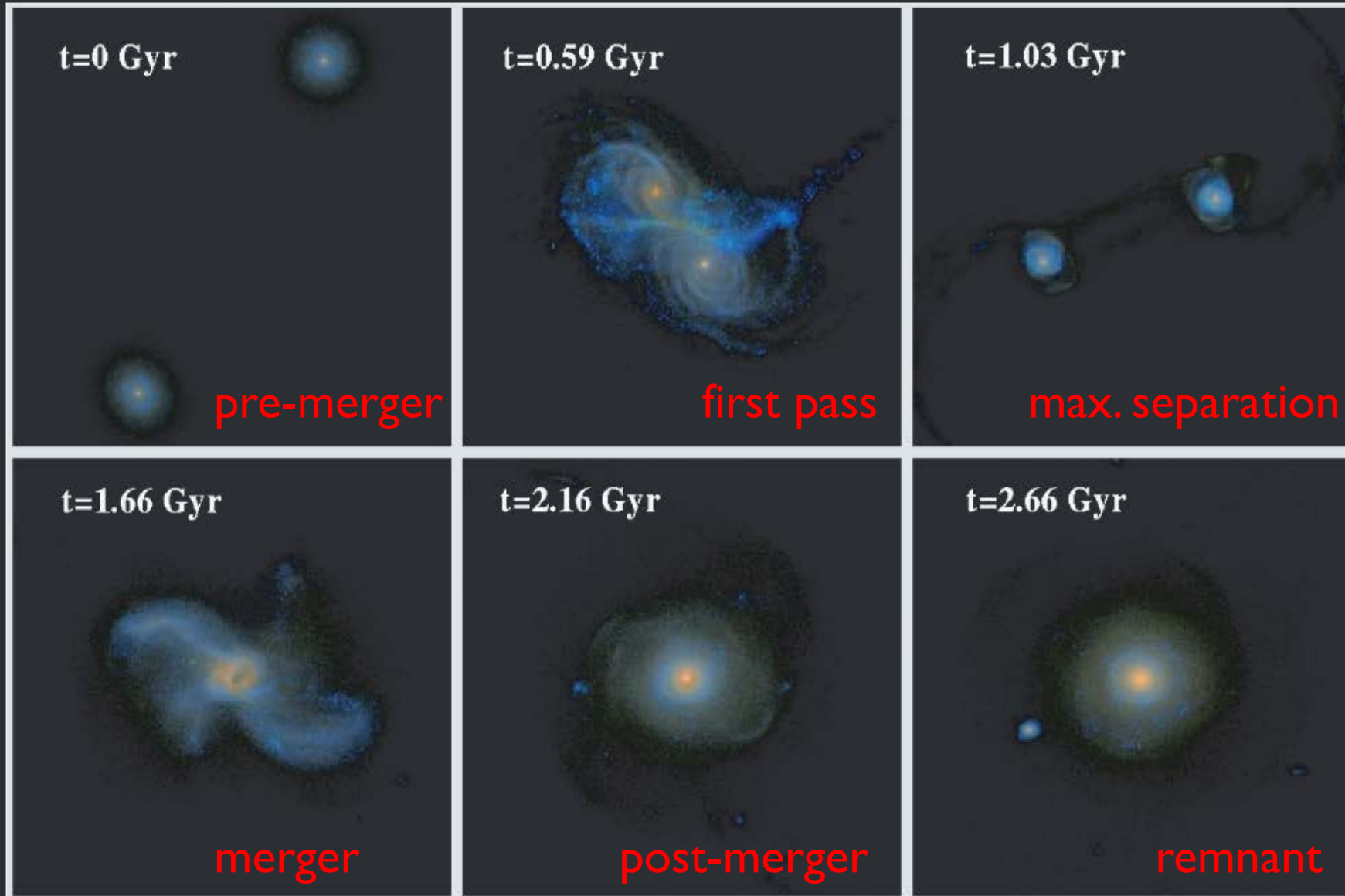
Galaxy merger rate

Rate per galaxy:

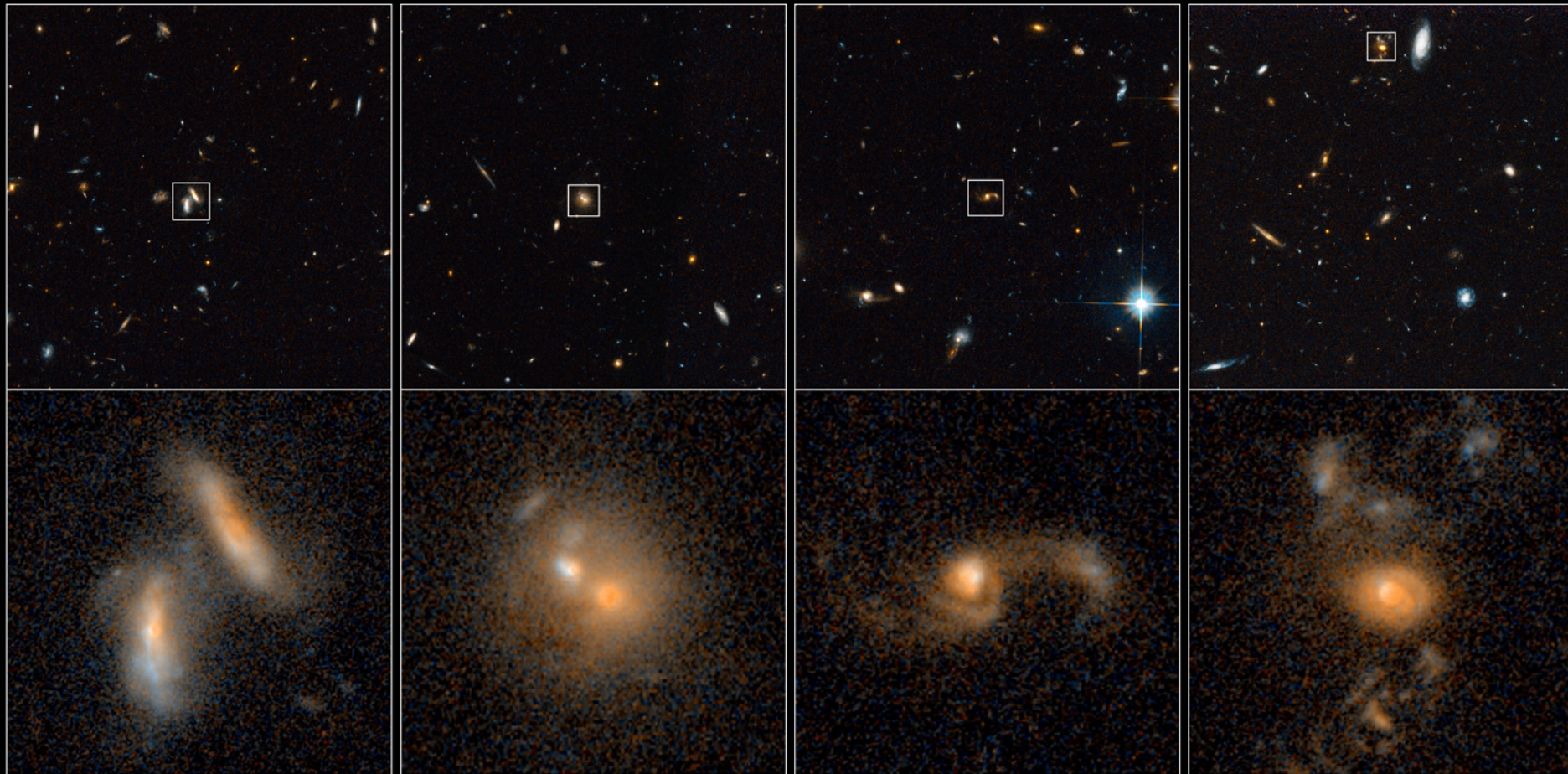


- Fewer major galaxy collisions per time, with ~5% of nearby galaxies having been involved in a major merger
- Ellipticals tend to have more nearby galaxies than spirals, adding evidence to bottom-up formation

Merger stages & timescale (equal mass-galaxy example)



Merger stages, observed



Merging Galaxies in the Extended Groth Strip
Hubble Space Telescope ■ *Advanced Camera for Surveys*

Merger and star formation

You will often read that galaxy mergers trigger star formation
...but the data do not support this simple explanation

