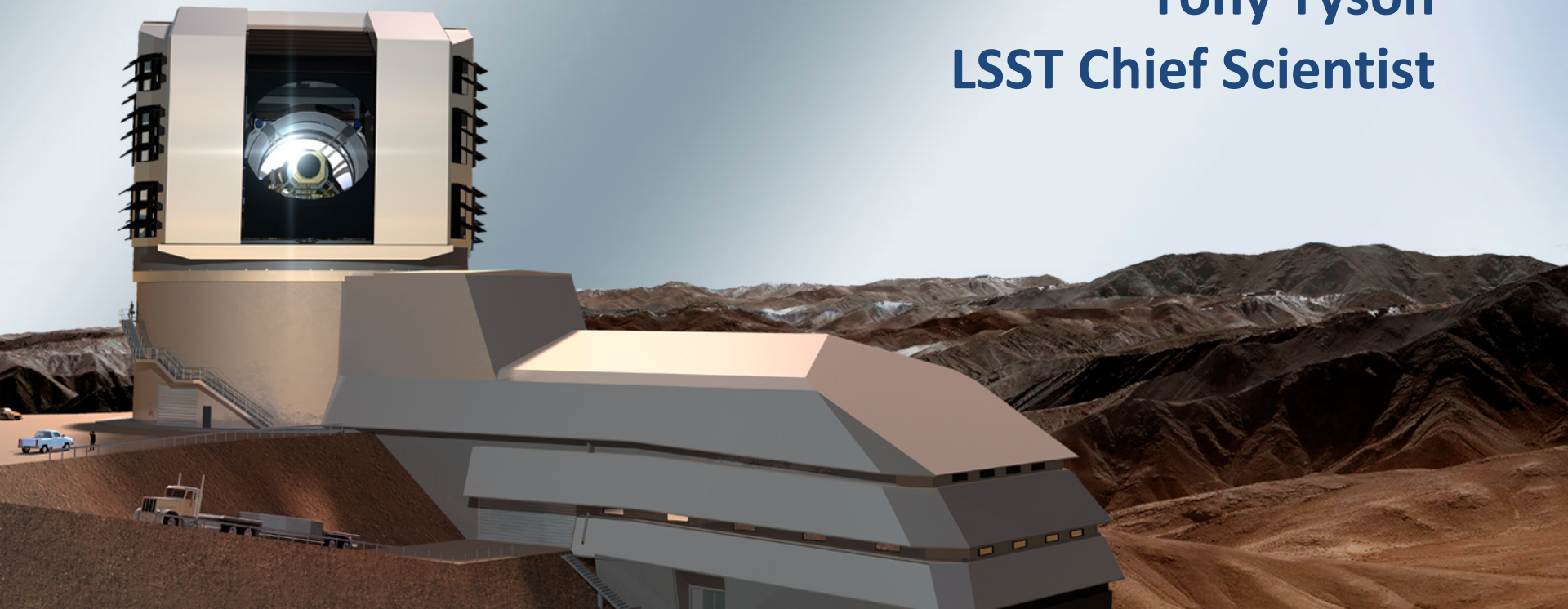




LSST@Europe3 Conference Summary

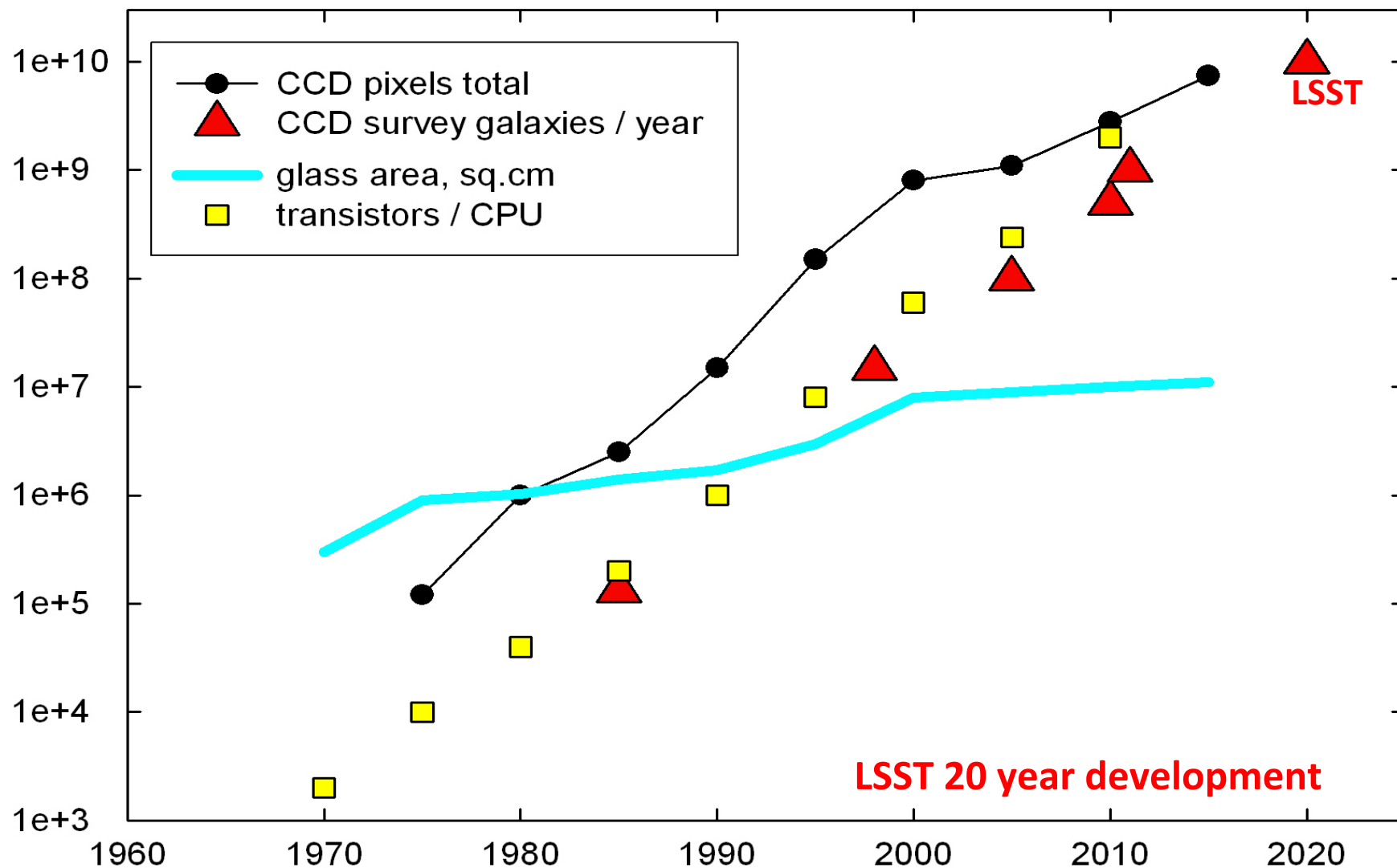
Tony Tyson
LSST Chief Scientist



Survey astronomy Moore's Law



Trends in Optical Astronomy Survey Data



LSST Wide-Fast-Deep survey

A survey of 37 billion objects
in space and time

*Each sky patch will be visited over 800 times:
30 trillion measurements*



- Étendue $319 \text{ m}^2 \text{ deg}^2$:
 - Revisit each sky patch ~ 800 times
 - Wide range of science from a single sky survey
 - Ultra-low Surface Brightness *a new exploration*
 - Deep Volume *good lensing signal with billions of galaxies*
- New data regime:
 - High dimensional complex data
 - No longer limited by statistical errors: Systematics
 - Discover the Unexpected

- Many young scientists at this meeting!



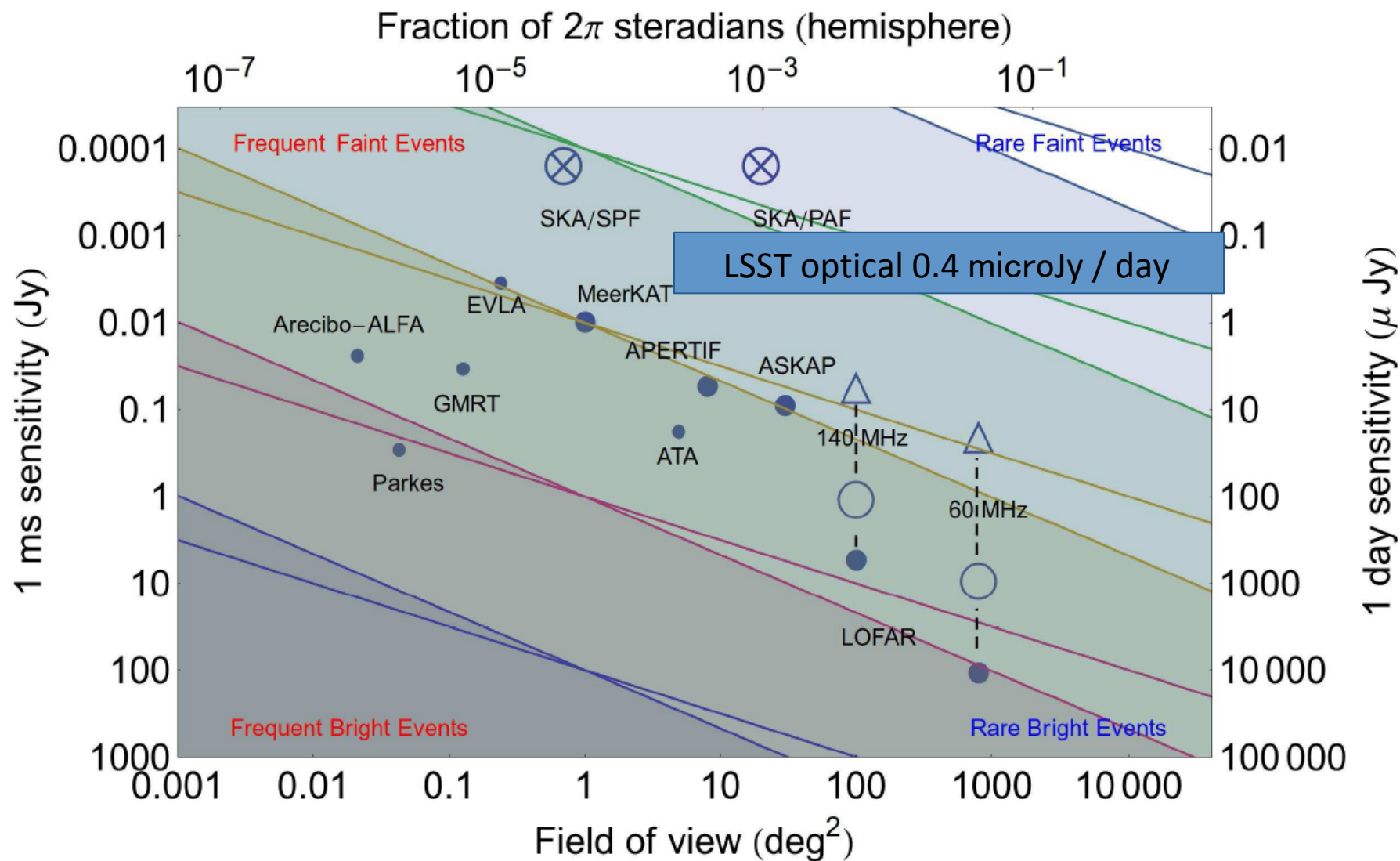


- Preparations for science with LSST is already yielding good advice for the Project
- Data Management community supplied algorithms
- Survey Cadence optimization *Rolling Cadence(s)*
- There will be hundreds of people doing LSST science in Europe



- As we expected [but could not prove], the scientific promise of LSST is increasing with time
- Two recent examples:
 1. discovery of first interstellar asteroid (LSST will find ~100)
 2. EM signature of gravitational wave sources
- *Multi-wavelength co-observing and follow-up*

Transient Radio – Optical Sky: LSST & SKA





- Novel discoveries in the era of LSST will be enhanced by connections with other deep wide-field surveys
- These include Euclid, WFIRST, CMB Stage 4, and SKA



- The presentations at LSST@Europe3 covered an impressive range of science applications to the current frontiers of astronomy, from time domain to ultra-low surface brightness
- LSST's legacy will also likely include the discovery of unexpected phenomena in space and time
- In our optimization of the LSST survey for known types of objects, let's be sure not to exclude unexplored discovery space



- We should continue building our collaboration in the spirit of open skies
- Much to be gained via collaboration!
- US is building the telescope, camera, data system
- European engagement with LSST data via operations support

LSST will open new windows onto our universe

