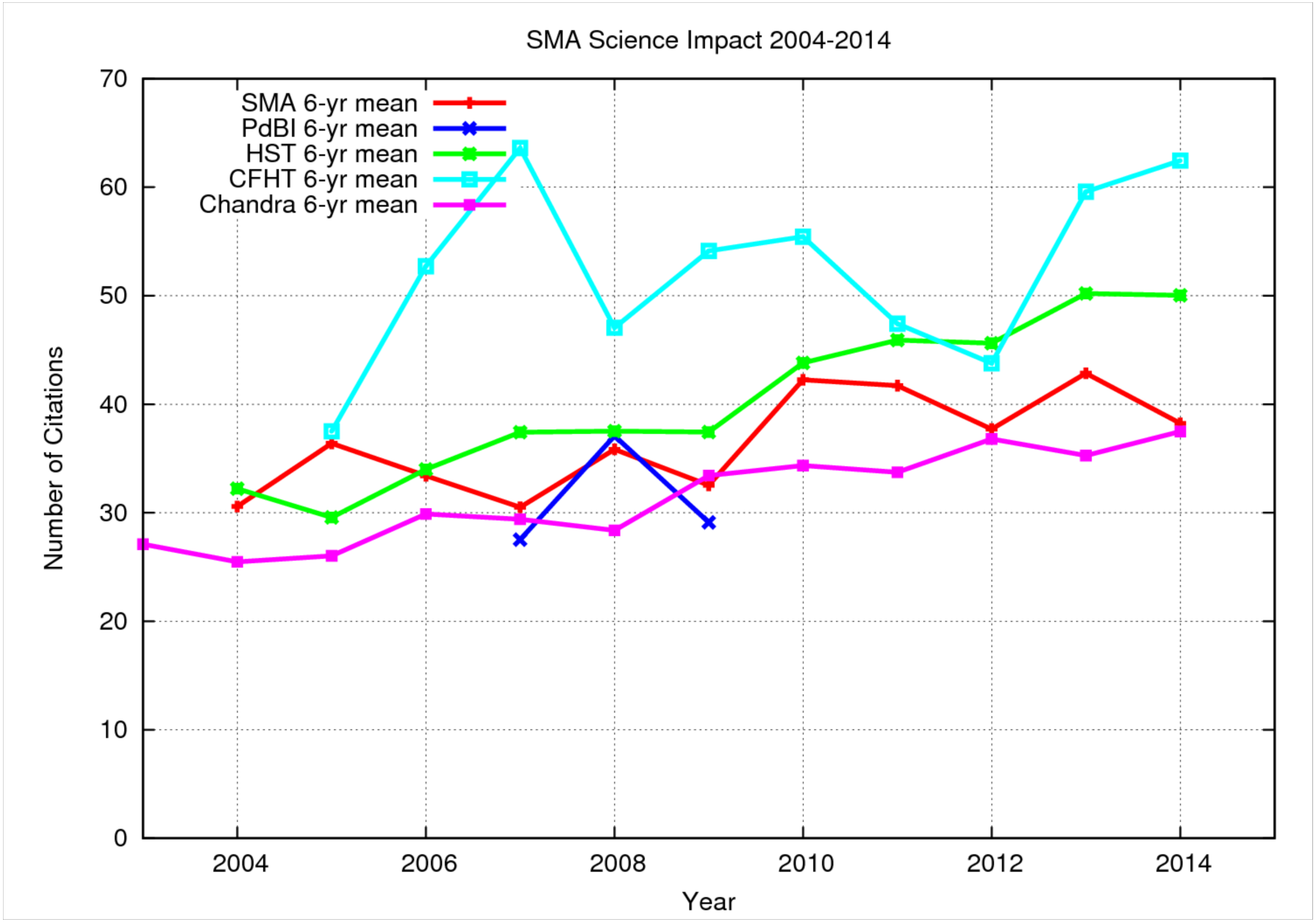
SMA Science Impact

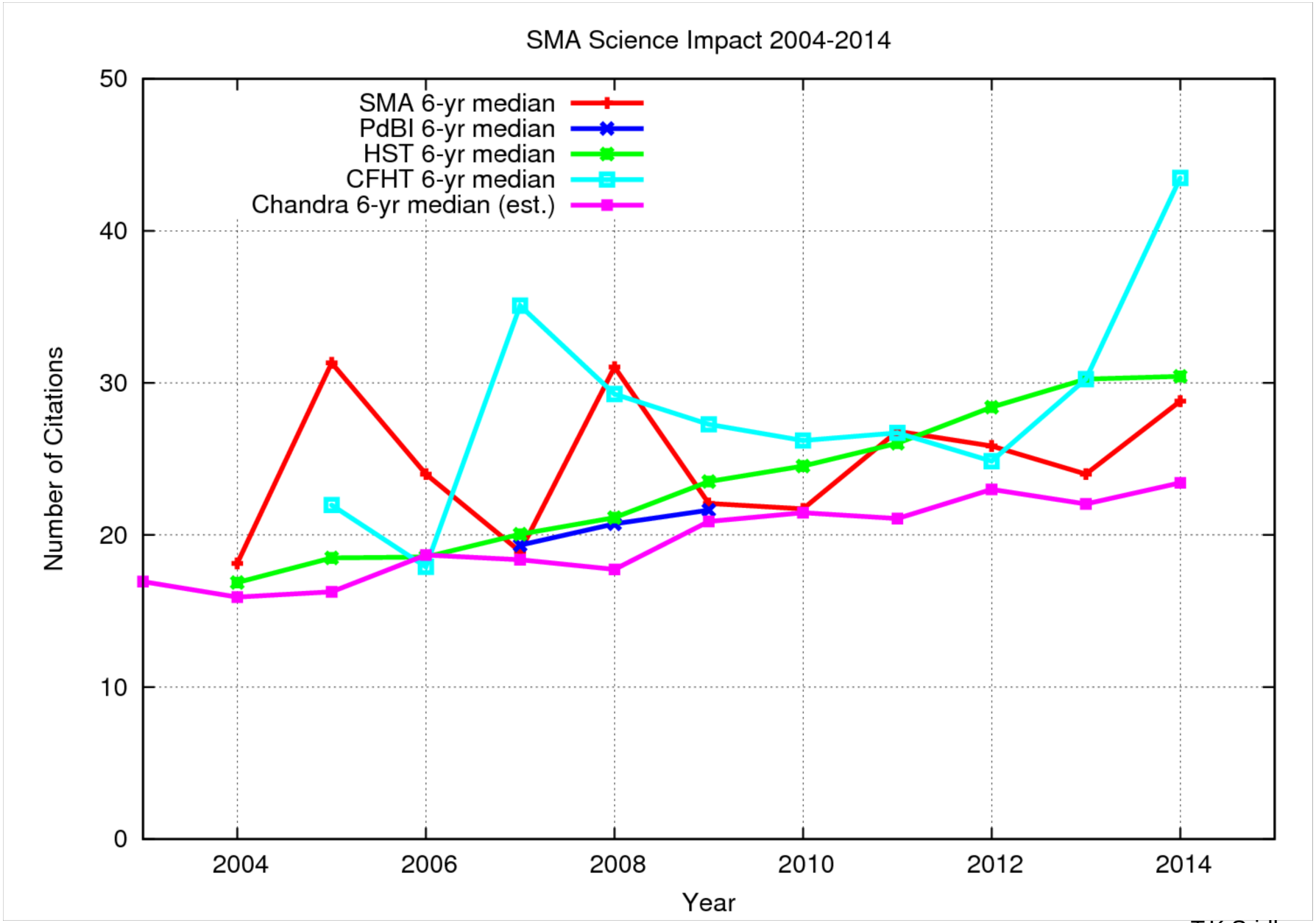
2004 - 2014

- 620 refereed publications
- 19 in Nature/Science
- 55 publications per year, 75 in the last 5 years
- Citation rates similar to other facilities
- Broad range of science areas
- Proposal over-subscription rate of ~ 3-4 indicates current relevance

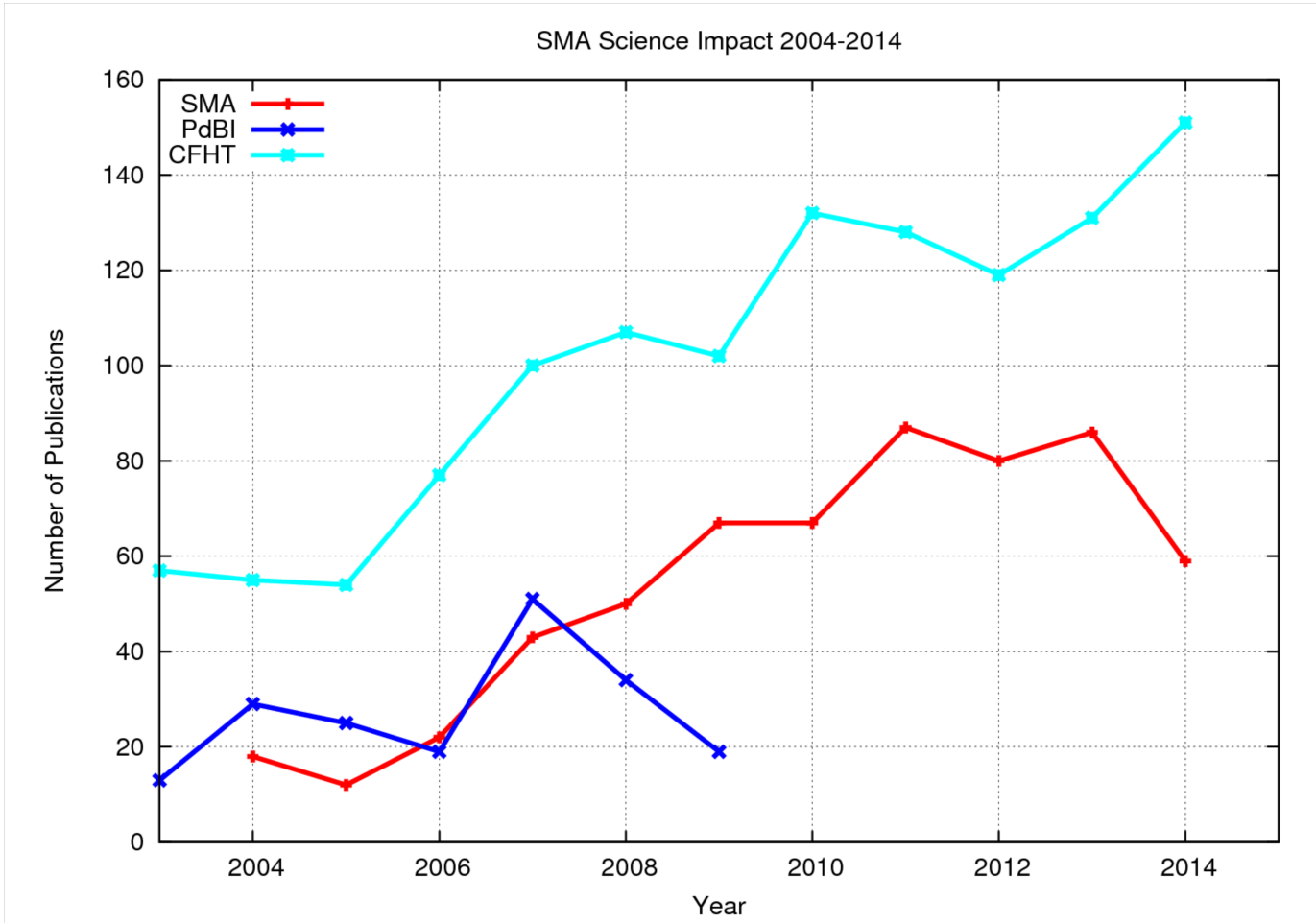
6 Year Mean Citations



6 Year Median Citations



Number of Publications



Chandra : x 6; HST : x 10

Understanding the Differences

- SMA is a sparse array, relies on Earth rotation needing ~ 1 night for an observation.
- Needs good weather and night time
- Chandra/HST observe round the clock
- Chandra/HST provide funds to produce results
- SMA publication rate is remarkable in this context
- Favourable comparison to PdBI with smaller collecting area

High Impact Fields

- High-z sub-mm galaxies

Reichers et al 2013, Nature, Maximum starburst galaxy at z=6.3 (c450)

- Protoplanetary disks

Andrews et al 2009,2011,2013 (c260,c370,c350), large cavities, mass dependence

- Gravitational lensing

Swinbank et al 2010, Nature, Intense star-formation in compact region at z=2.3 (c220)

- High-energy transients

Abdo et al 2010, Blazar SEDs (c380), Zauderer et al 2011, Nature, birth of a relativistic outflow (c240)

- Galactic Centre, M87 BH
- Star-formation studies, nearby galaxies

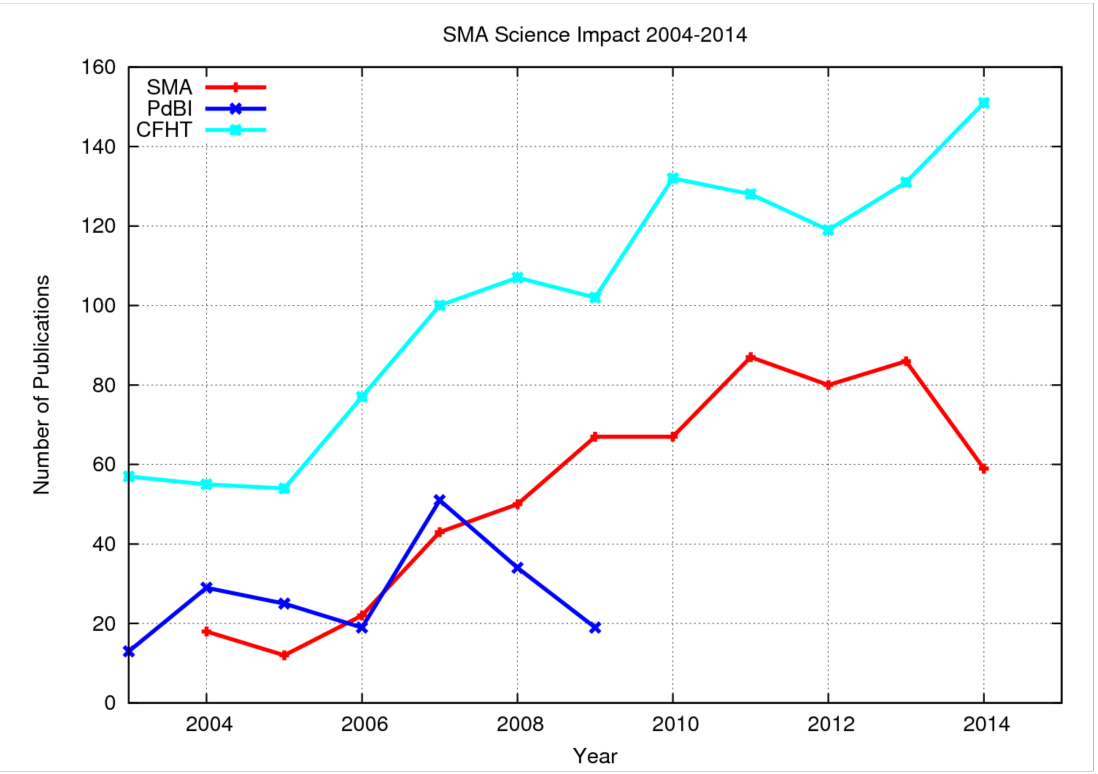
large collective impact hard to quantify, smaller community, local leadership

- Late type stars, solar system studies

small community, local interest

- High impact areas unanticipated – riskiest projects delivered the most impact
- Should hold for future - keeping a broad range and open eyes may be the best approach

Number of Publications



CFHT replaced their entire suite of instruments in 2003-2005 (to start “Golden Age”)

SMA publications gradually improved to a plateau

The proposed SMA upgrades should provide a similar boost - indicated by high proposal pressure (3-4) and publication impact