

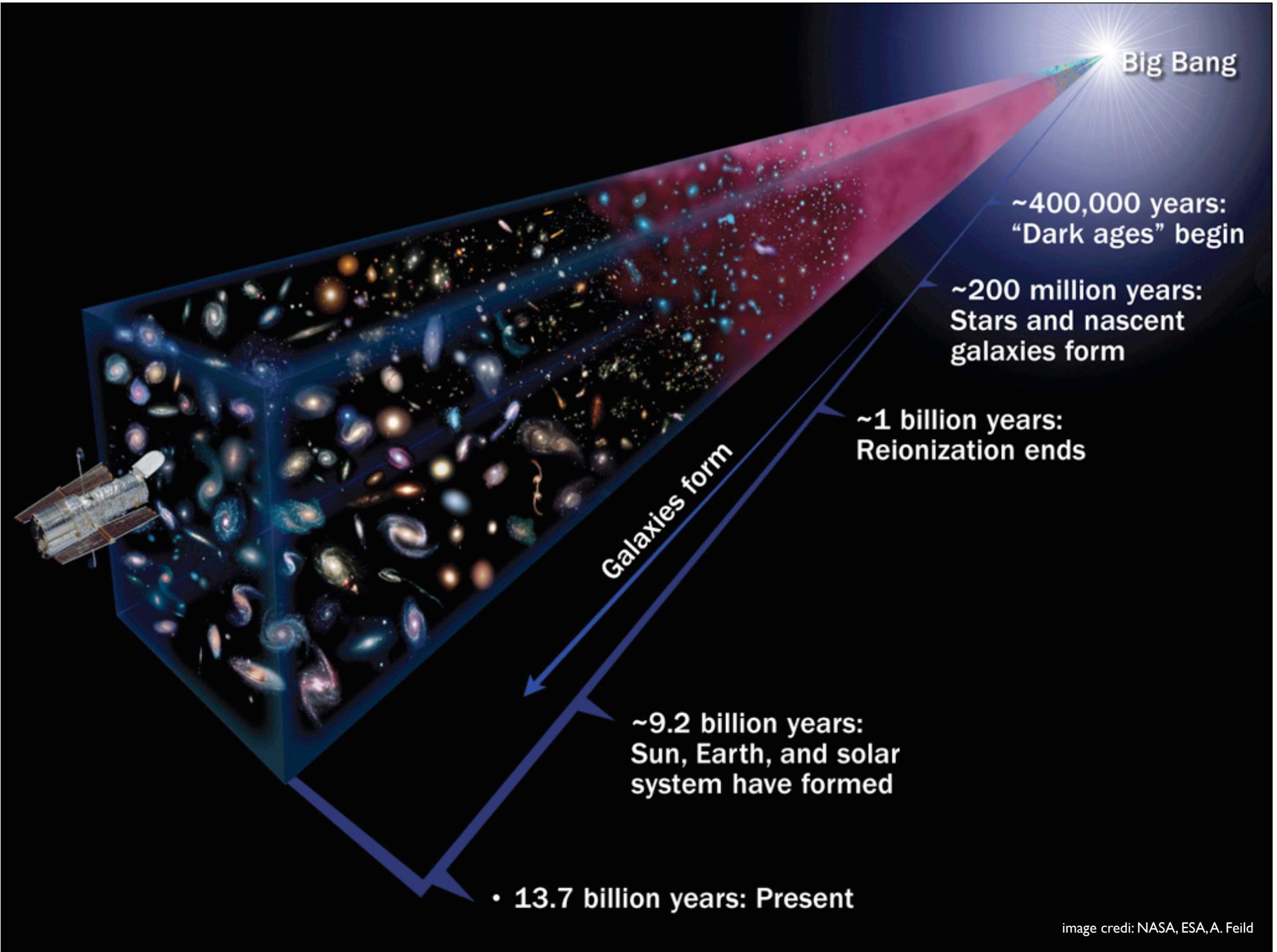
Lyman-Break Galaxies in the Epoch of Reionization

Silvio Lorenzoni

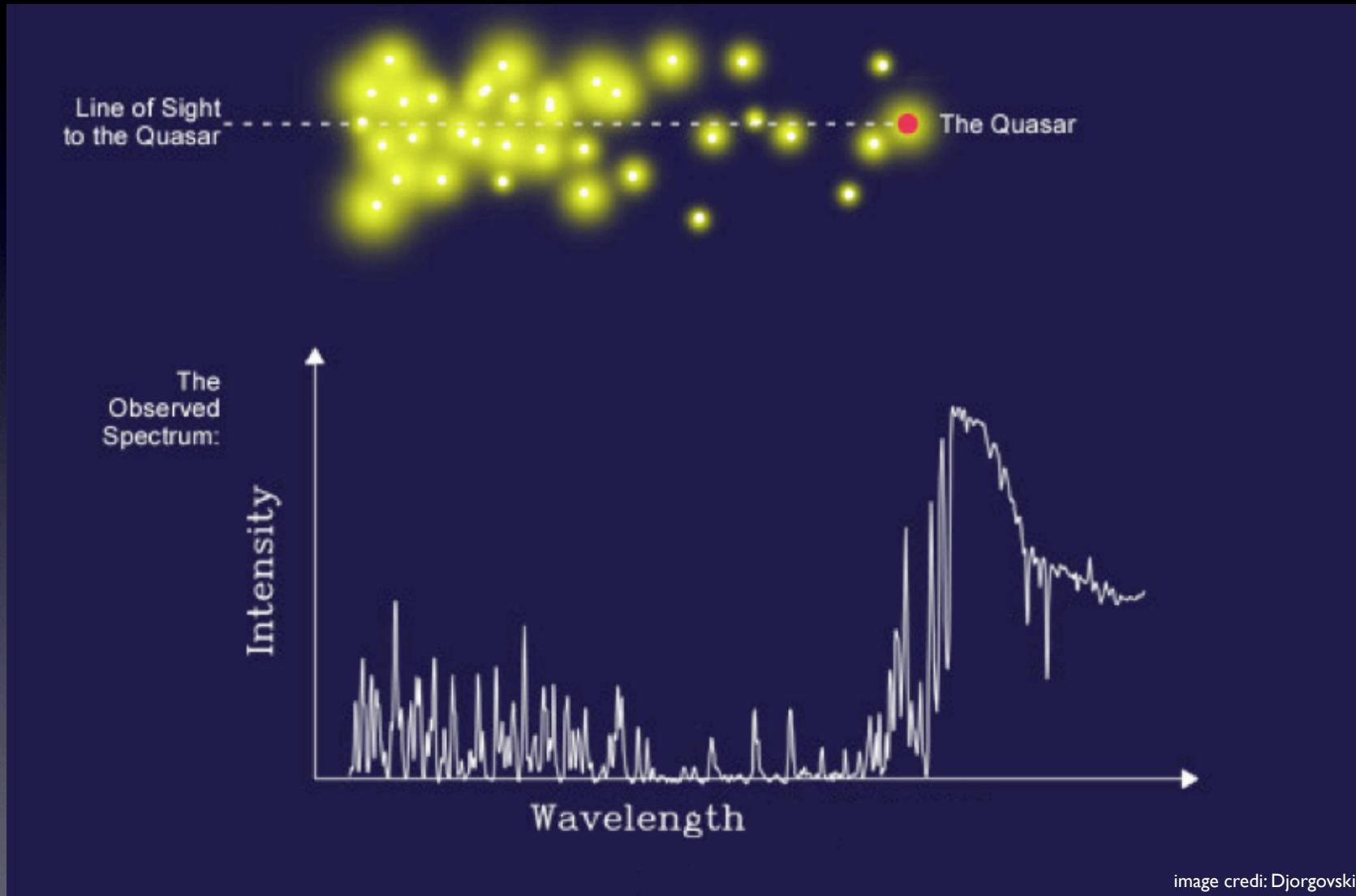
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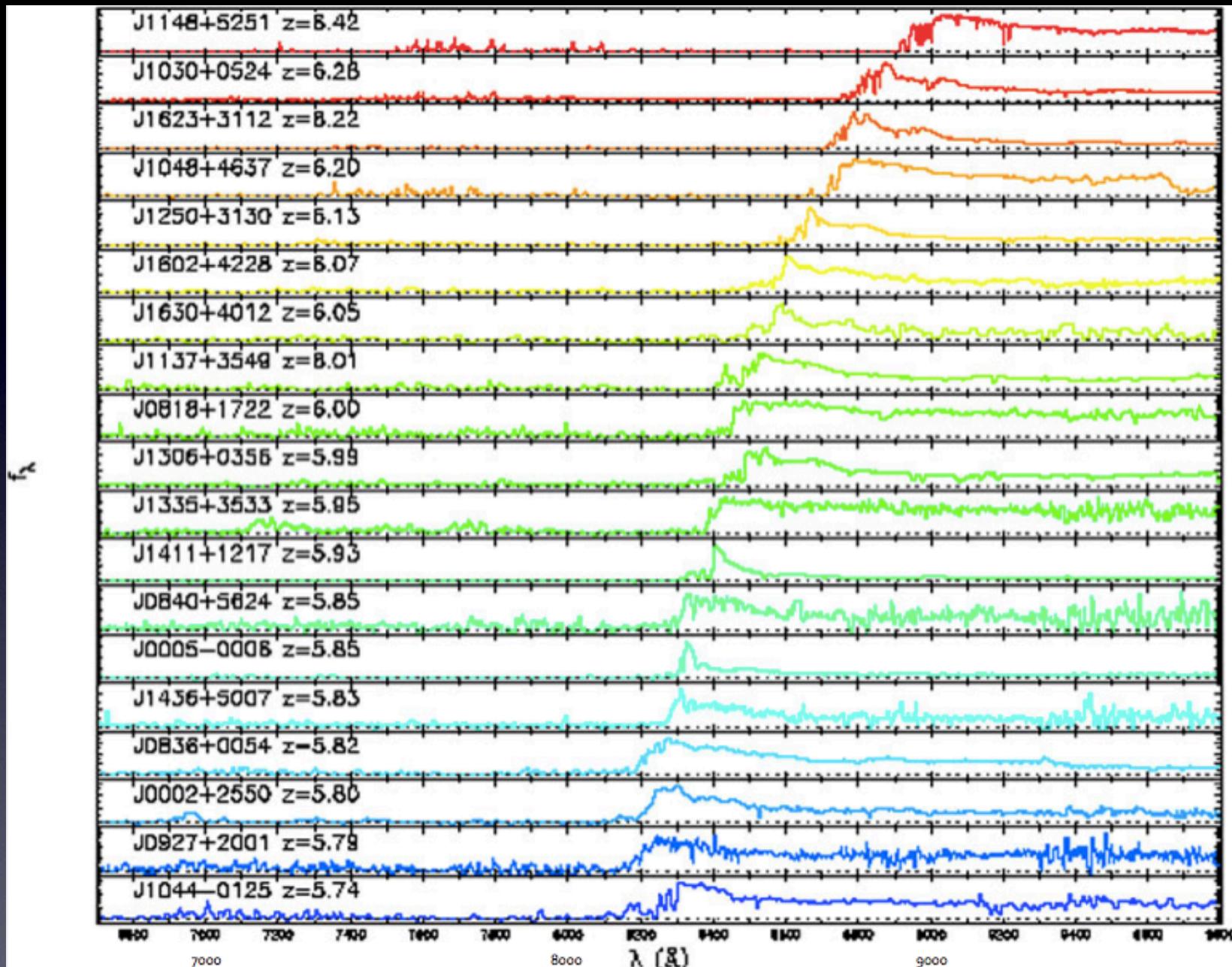


Andrew J. Bunker, Stephen M. Wilkins, Joseph Caruana, Holly Elbert

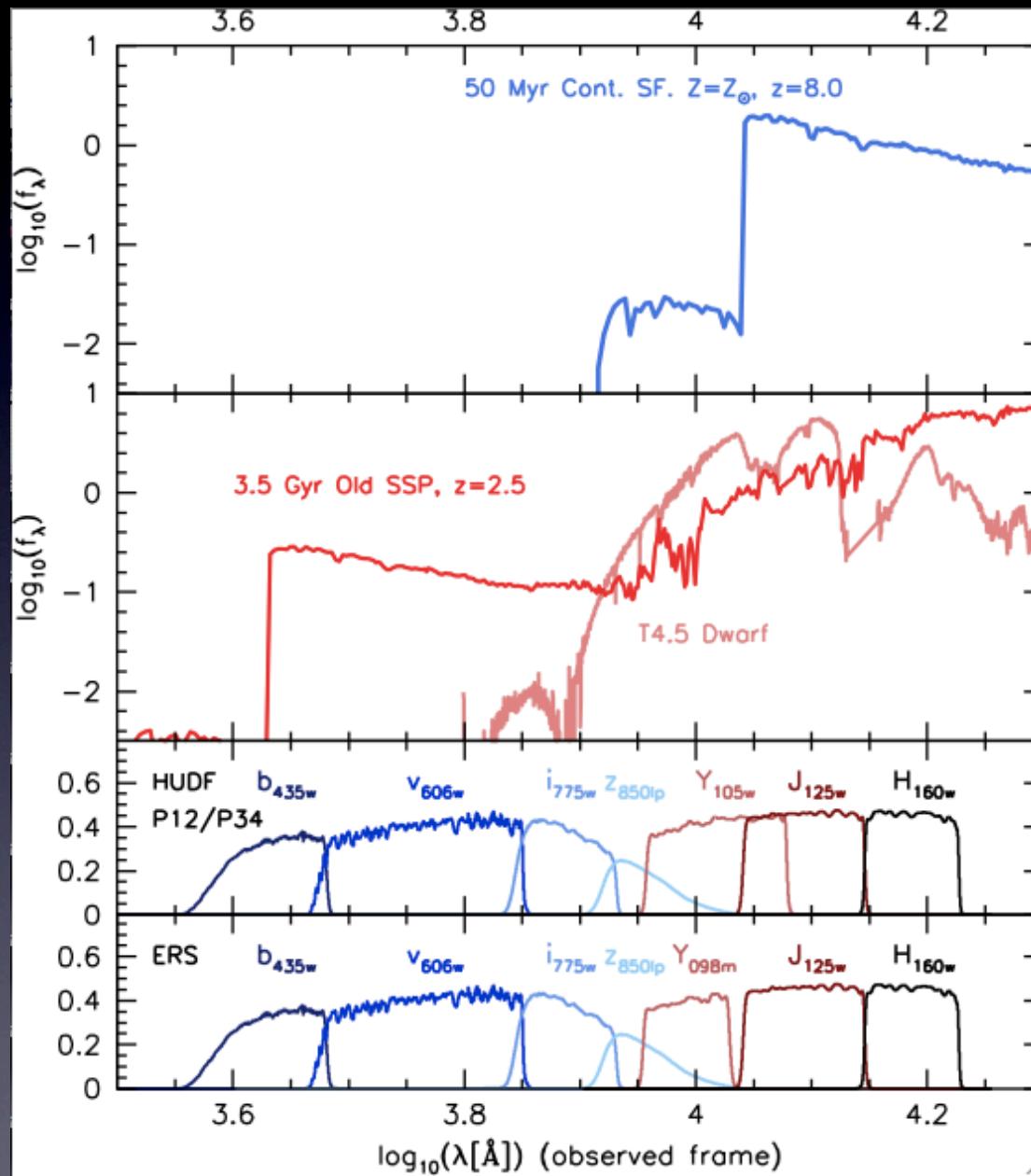


Gunn-Peterson effect

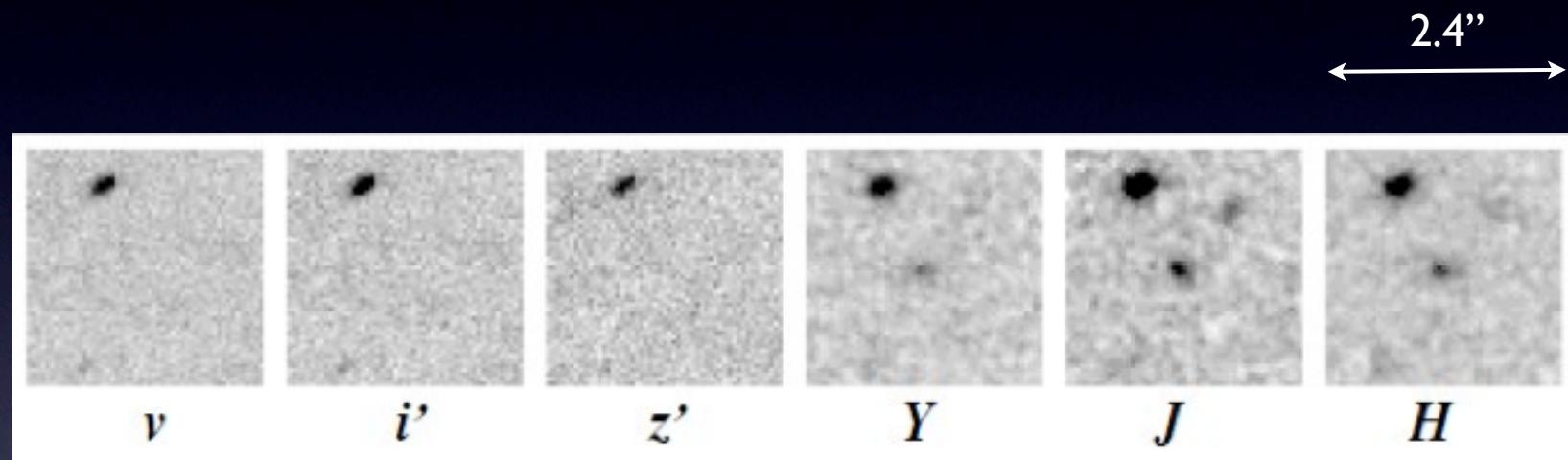




Lyman-break technique

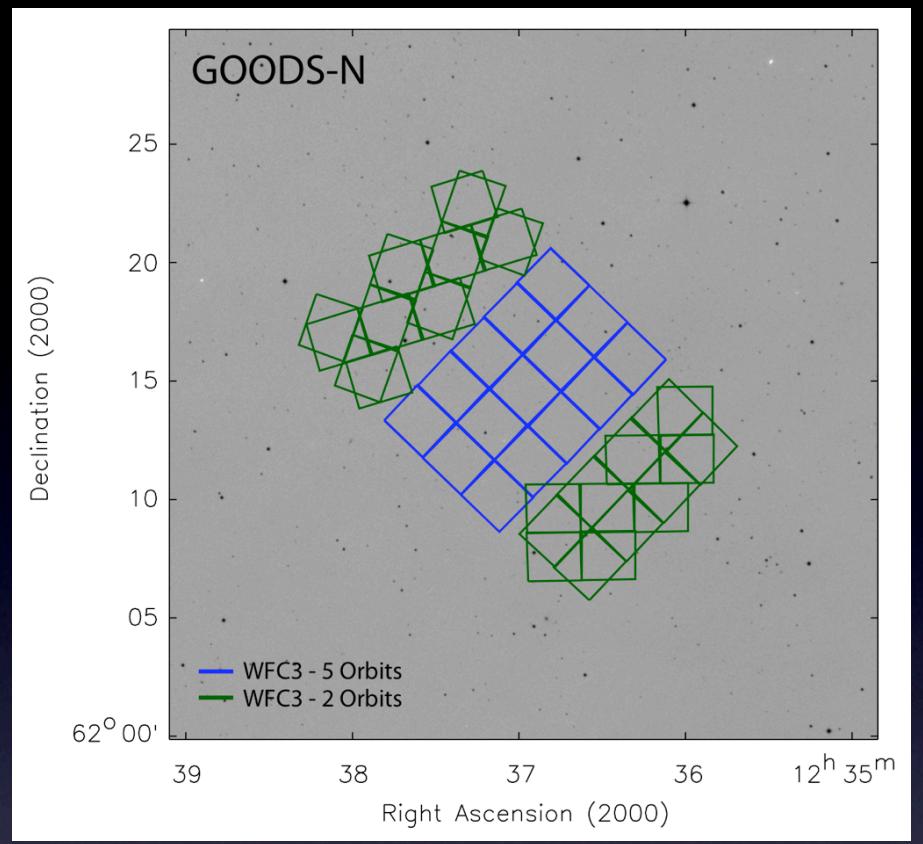
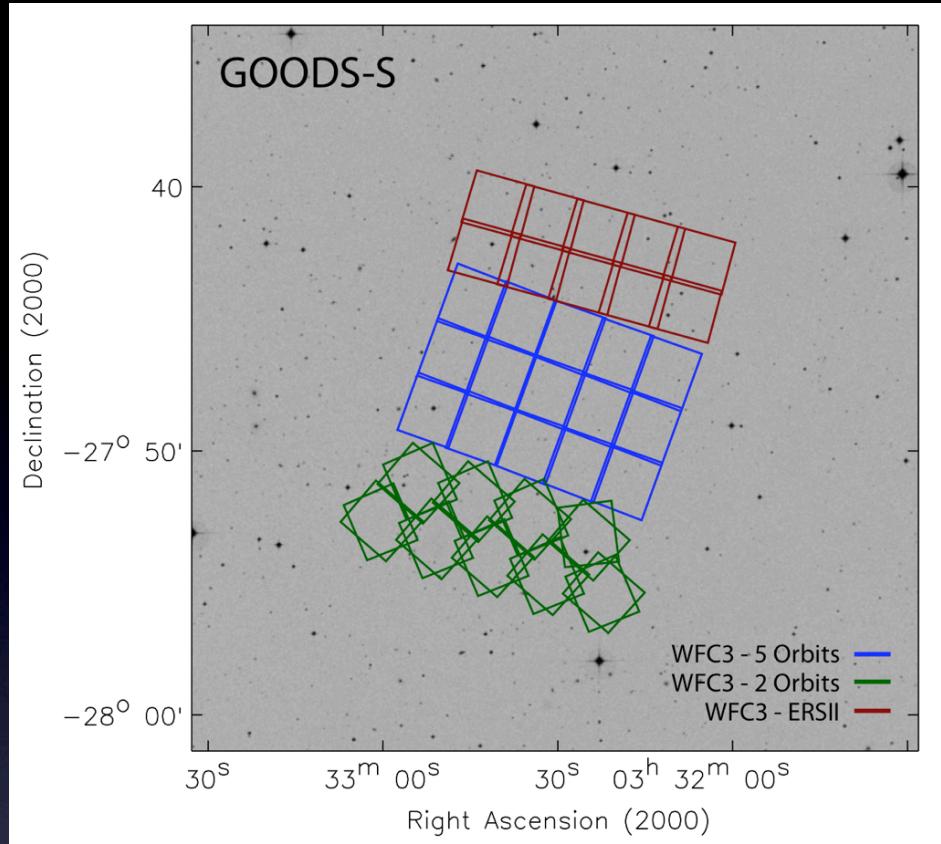


Candidates





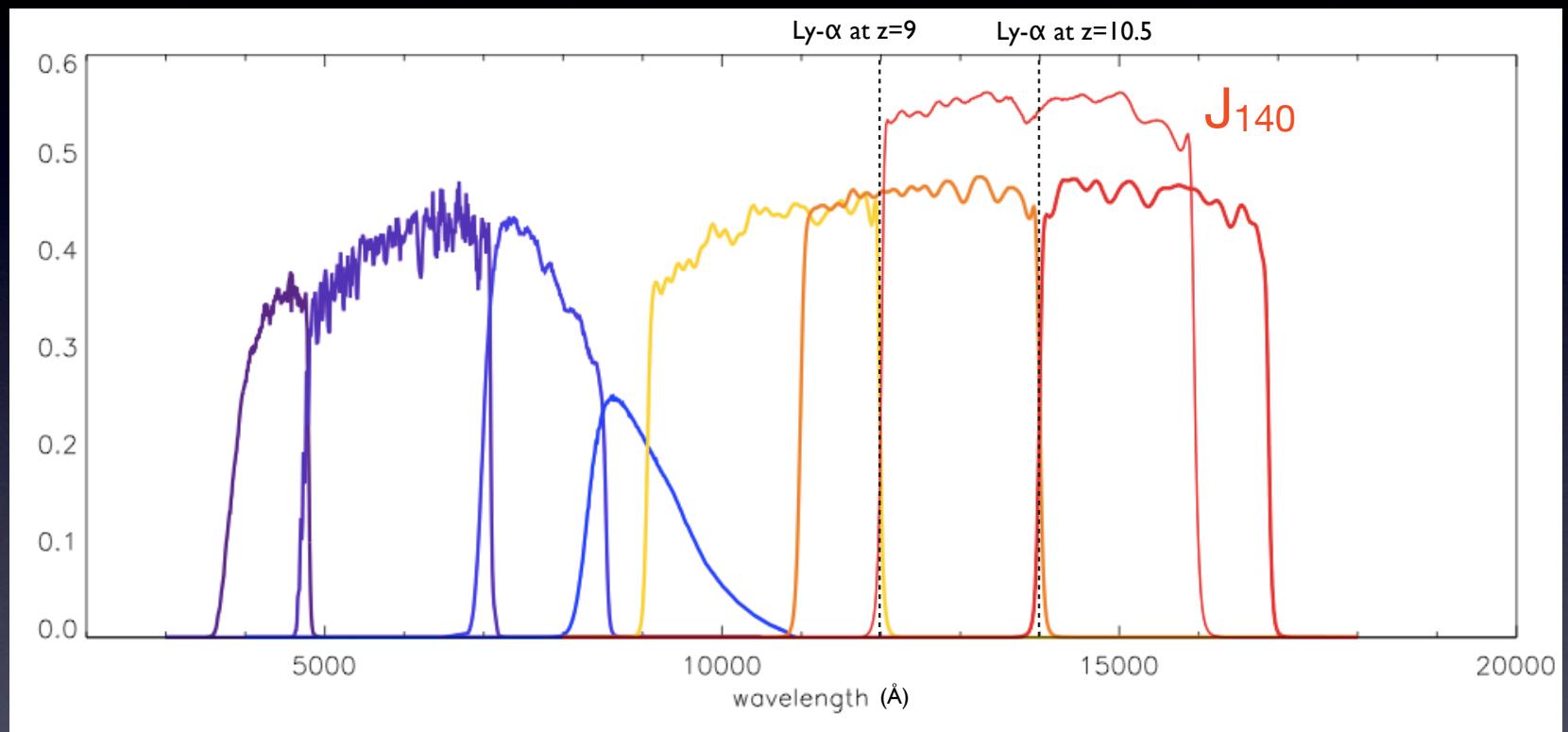
XDF

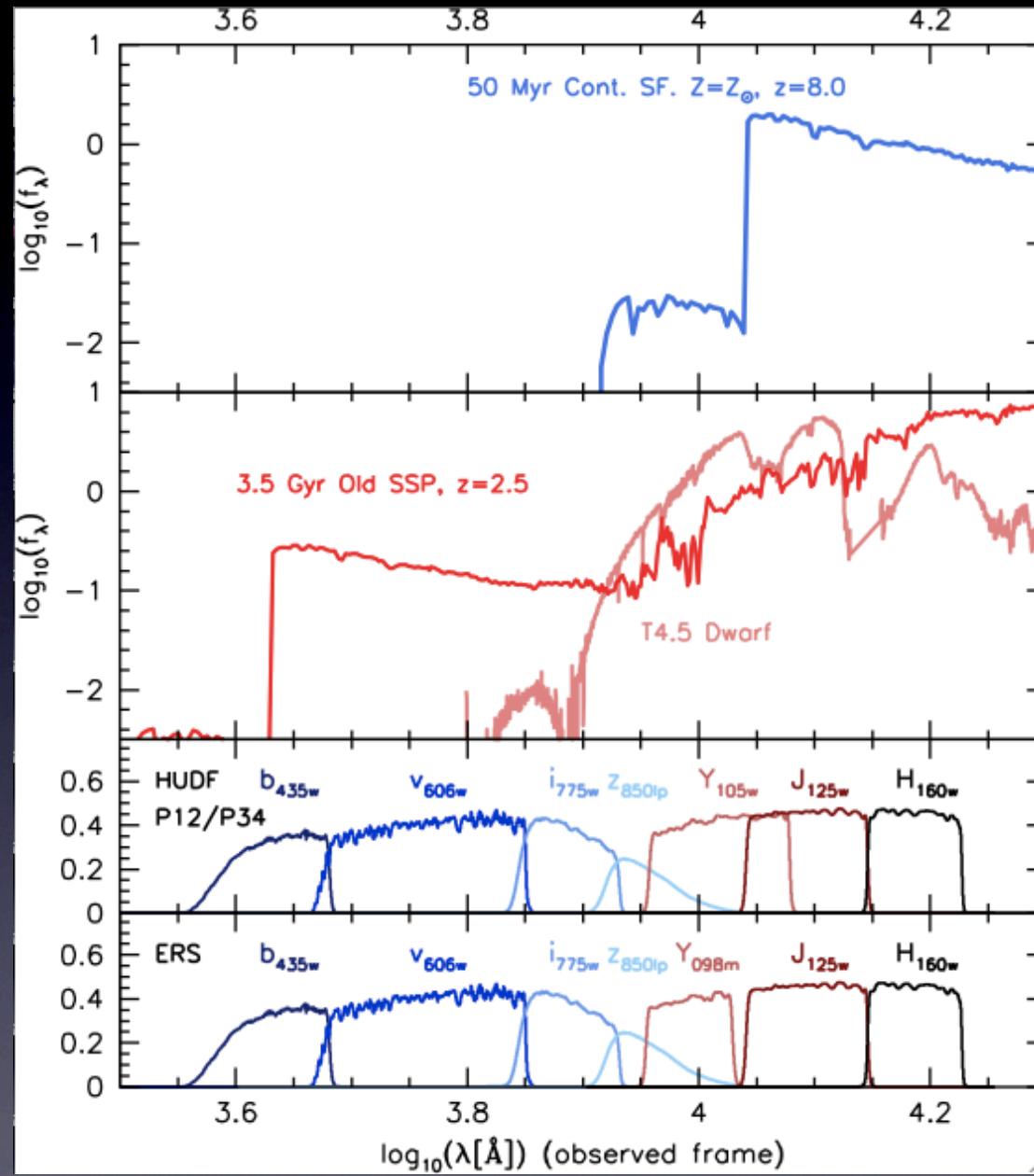


CANDELS

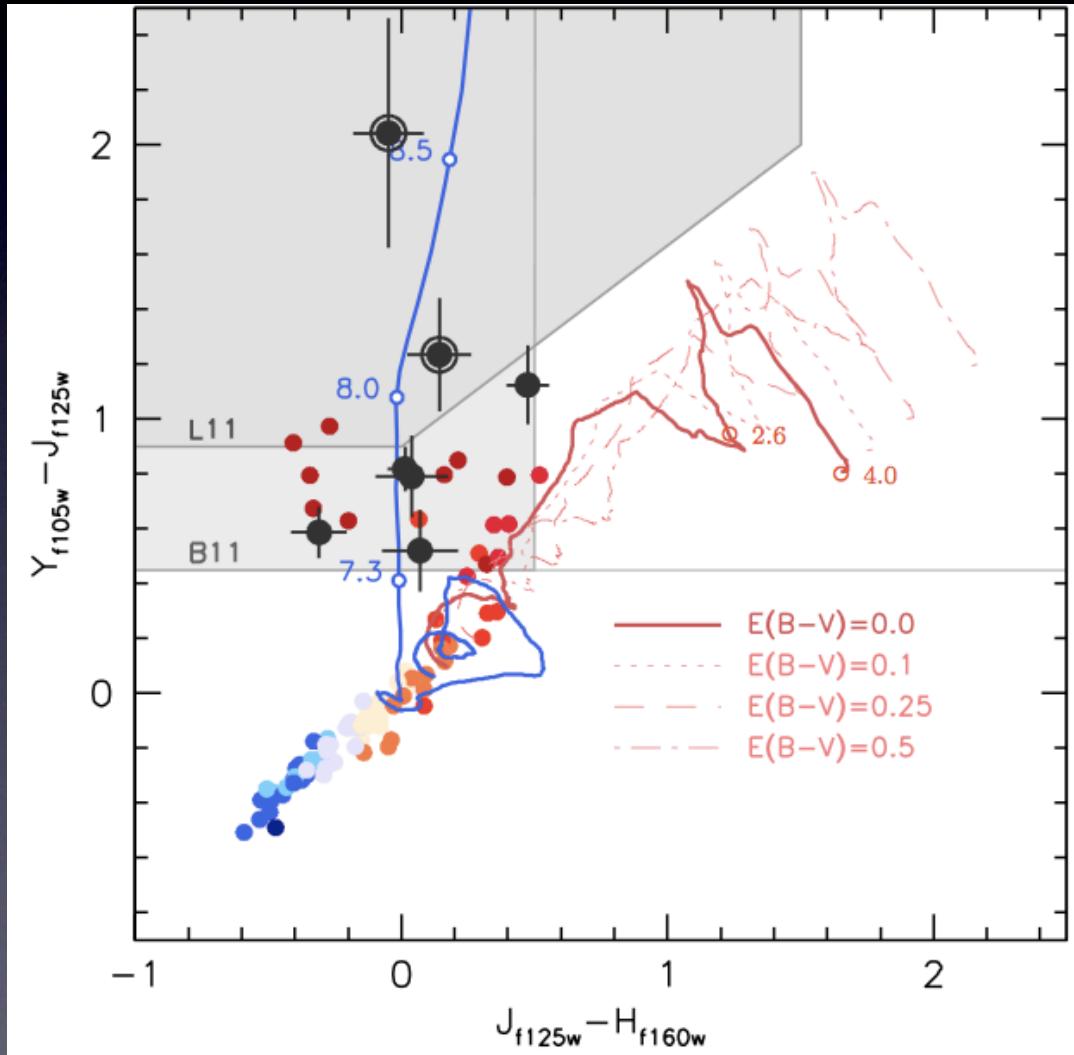
	5- σ depths (AB magnitudes)		
	Y-band	J-band	H-band
XDF	29.2	29.0	29.0
HUDF09-2	28.5	28.6	28.4
HUDF09-1	28.2	28.5	27.2
ERS	27.0	27.4	27.1
CANDELS DEEP	27.8	27.3	27.2
CANDELS WIDE	26.8	26.9	26.6

XDF filters



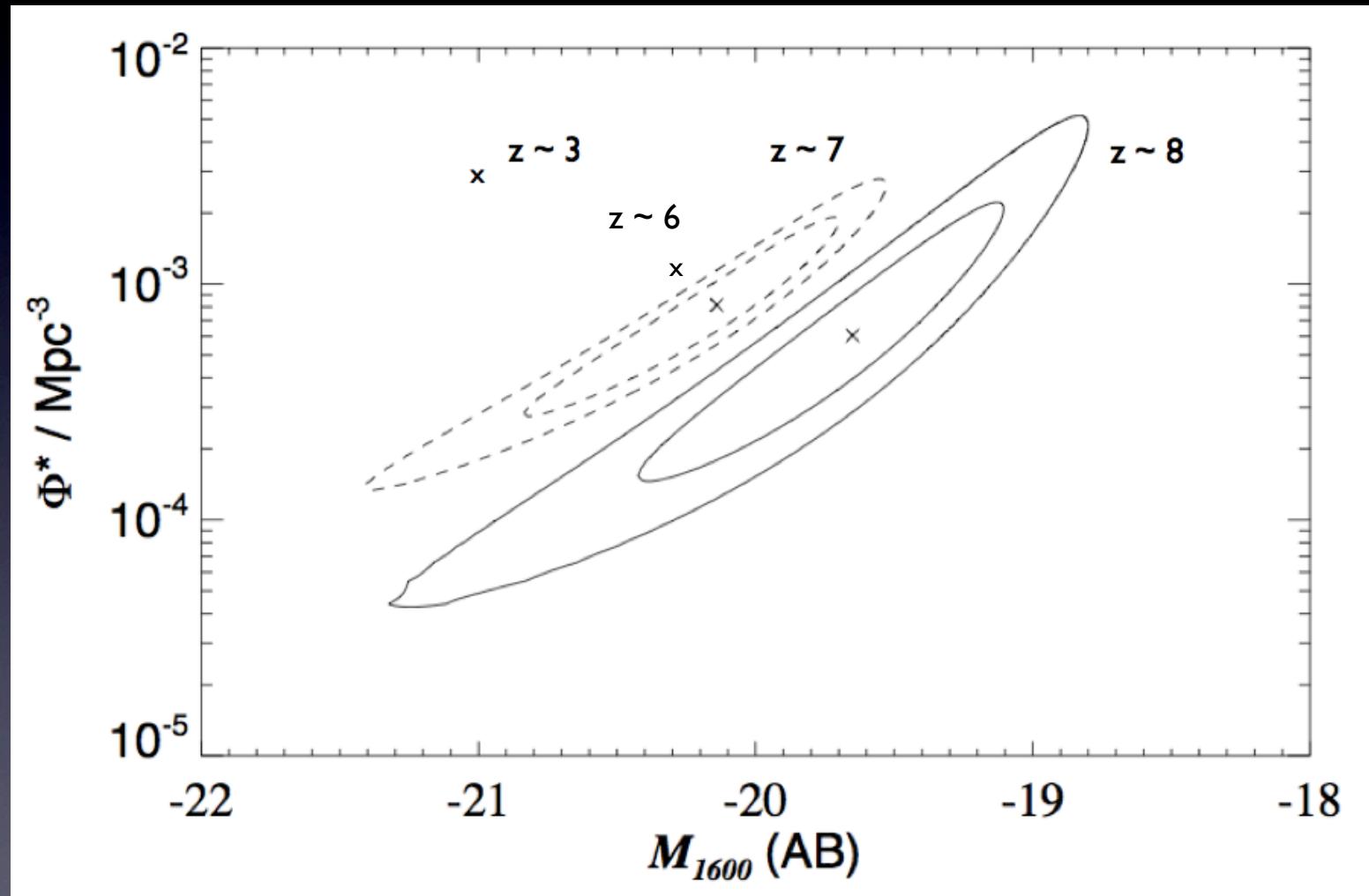


Selection criteria

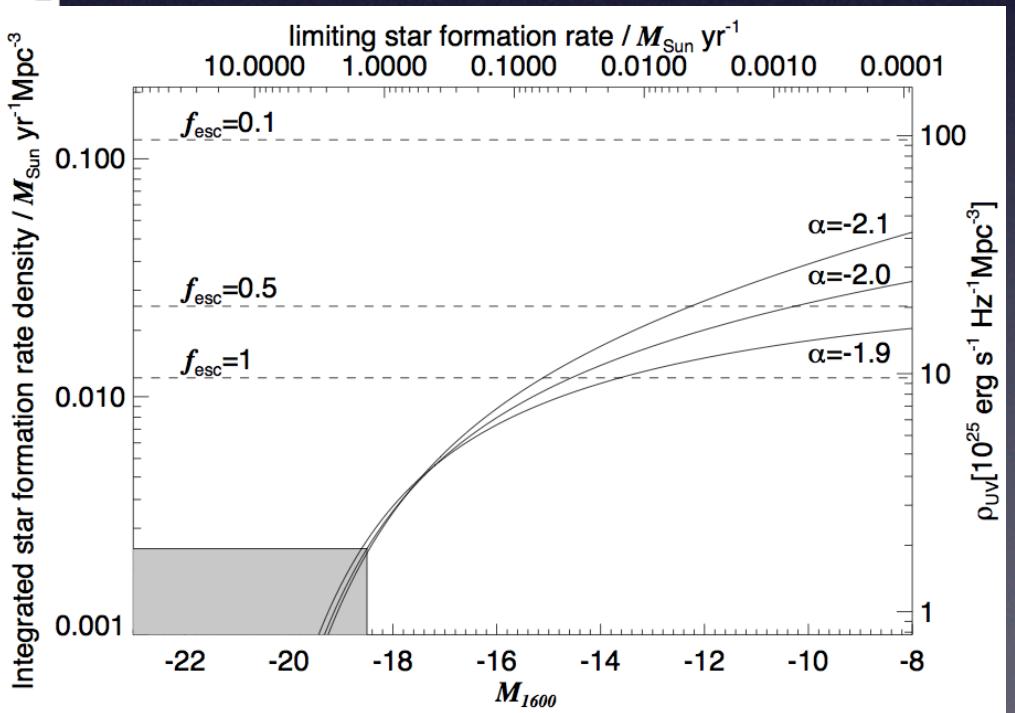
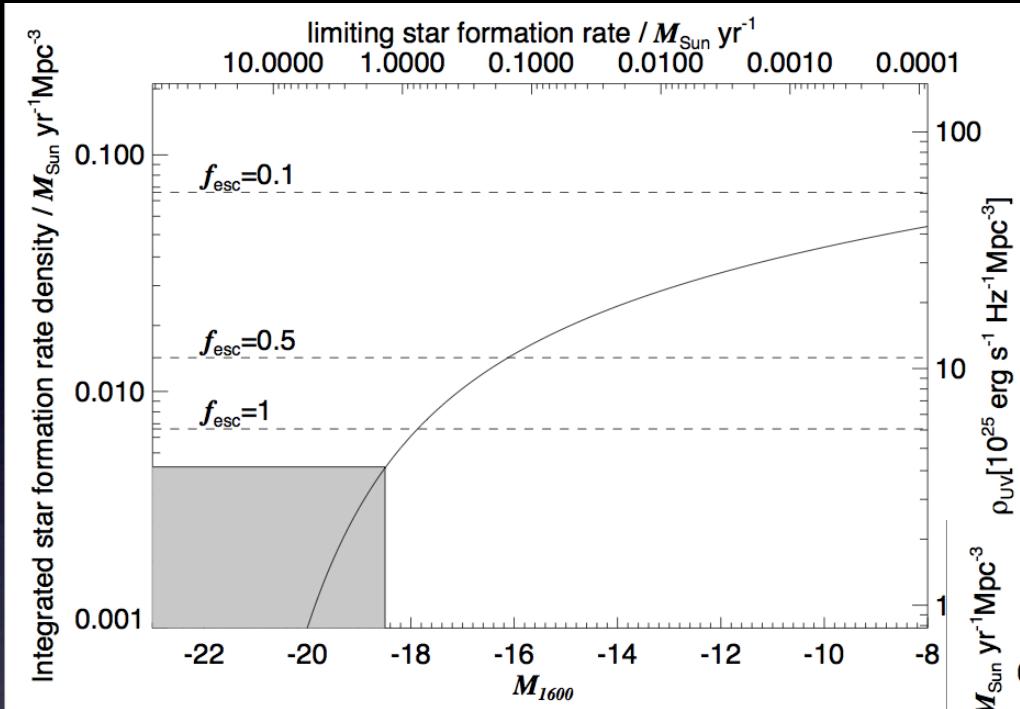


- $>5\sigma$ detection in two bands longwards of the break
- $<2\sigma$ non-detection in optic bands
- colour criteria

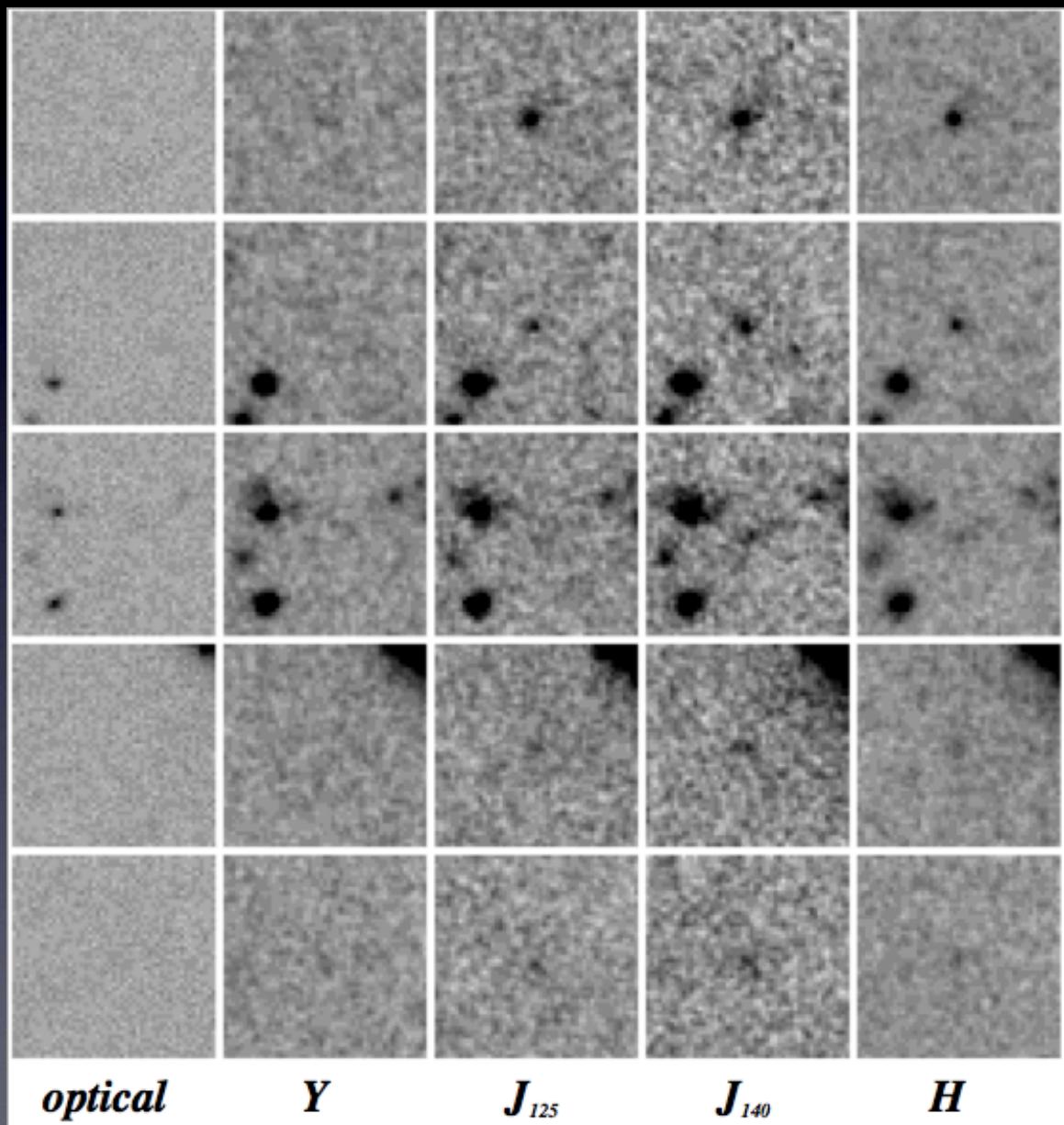
LF evolution



Implications for reionization

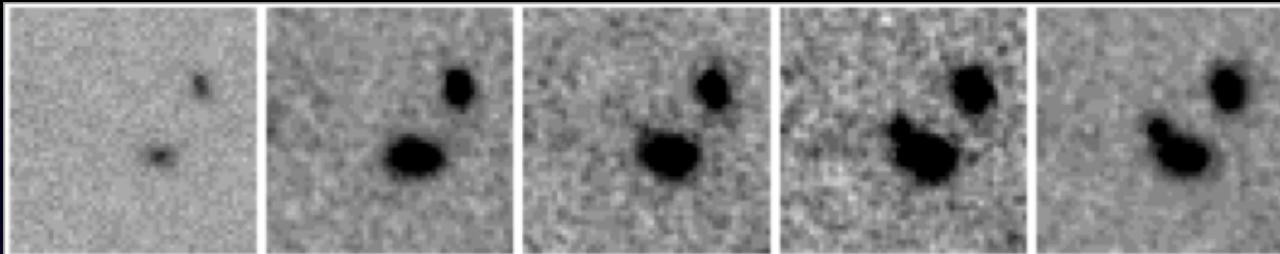


$z \sim 9\dots$

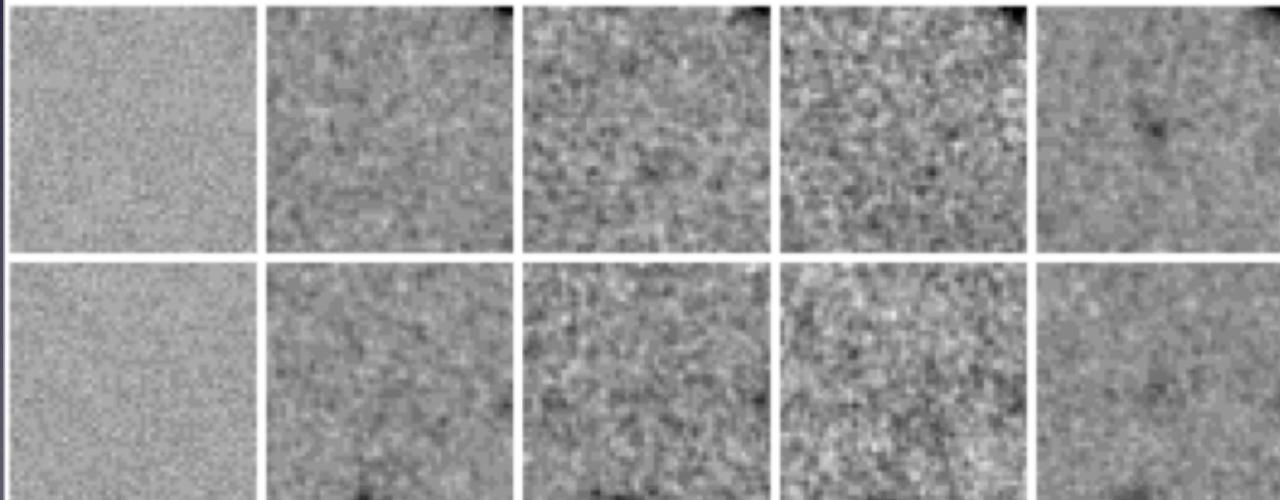


...and beyond!

$z \sim 10$



$z > 10.5$



optical

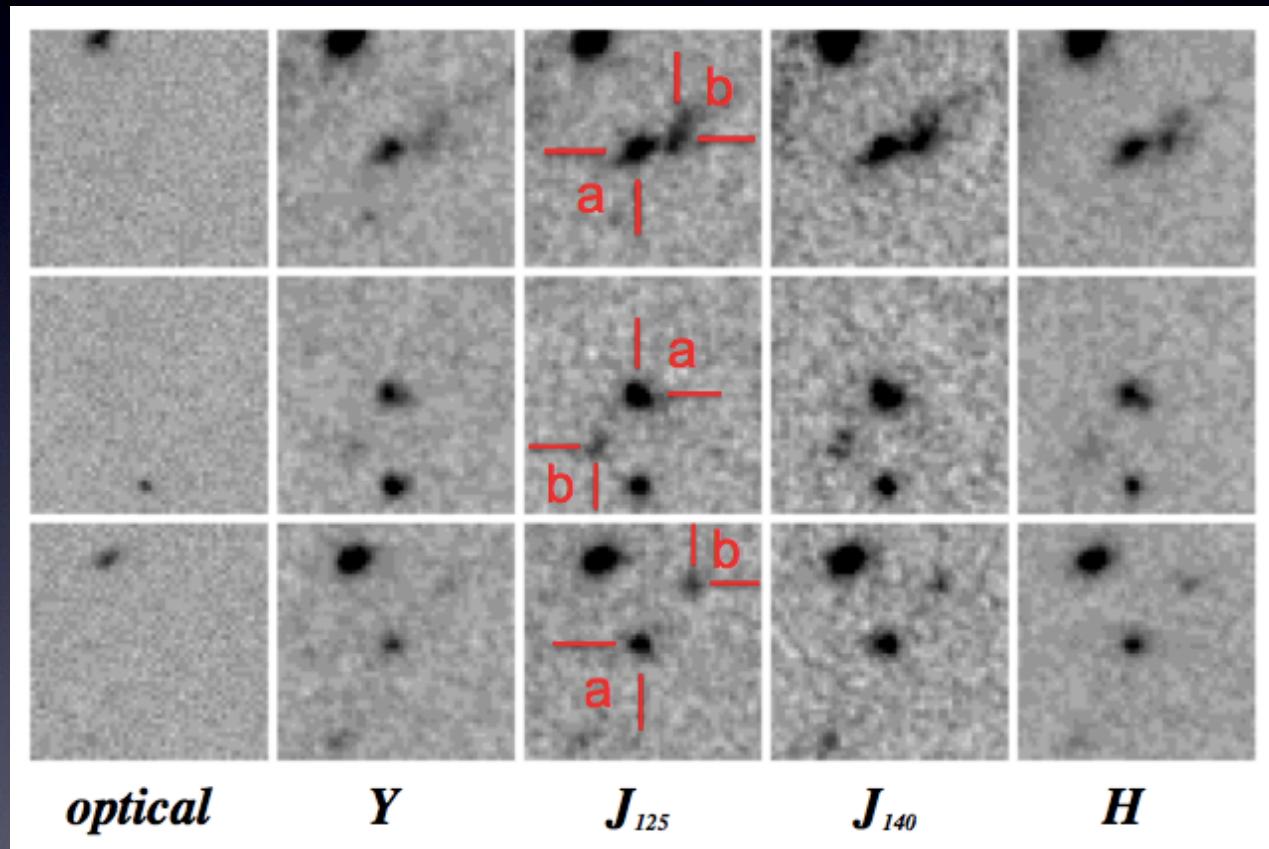
Y

J₁₂₅

J₁₄₀

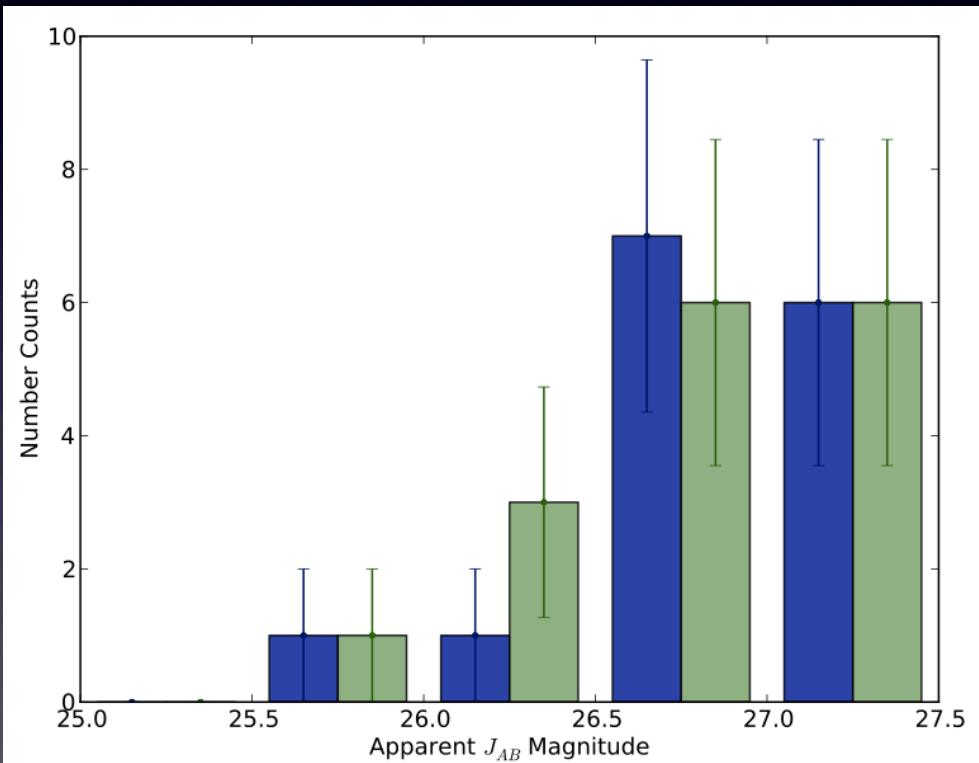
H

Close pairs

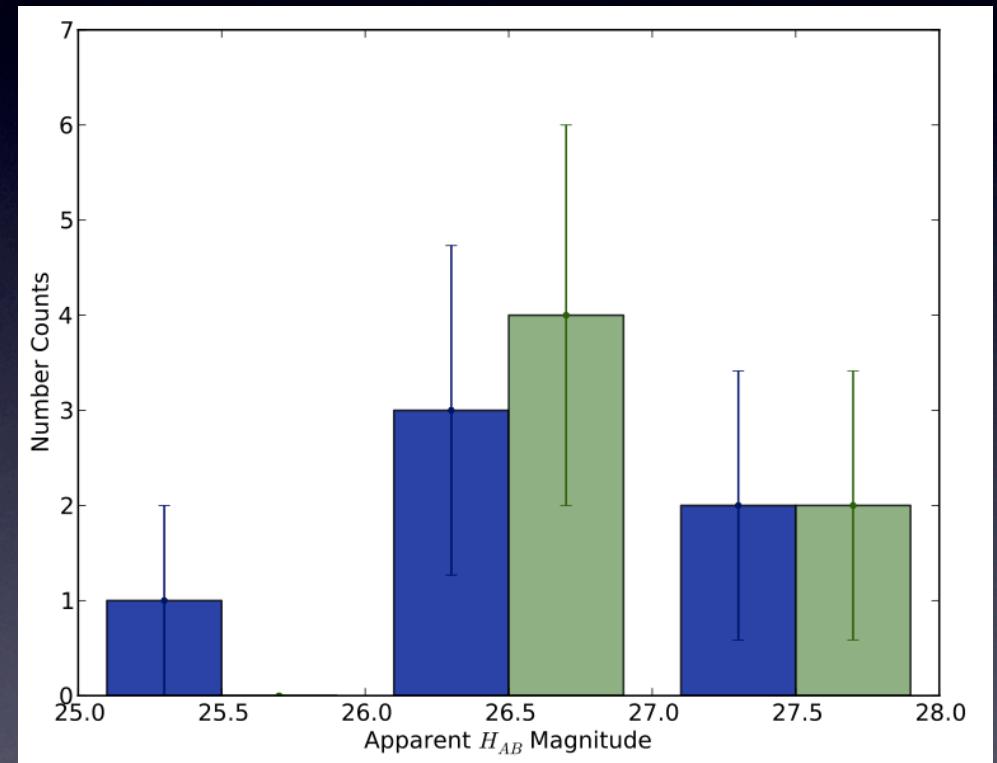


Cosmic variance

z-drops



Y-drops



GOODS-North

GOODS-South

Summary

LF evolution:

clear from $z=3$

evidence for evolution from $z \sim 7$ to $z \sim 8$

both in φ^* and M^*

Reionization:

candidates we detect have insufficient flux for reionization,
but a steep faint end slope, low metallicity population and a
top-heavy IMF could all be factors that might provide enough
ionizing photons.

Cosmic variance:

within the expected Poisson noise

compatible with theoretical predictions