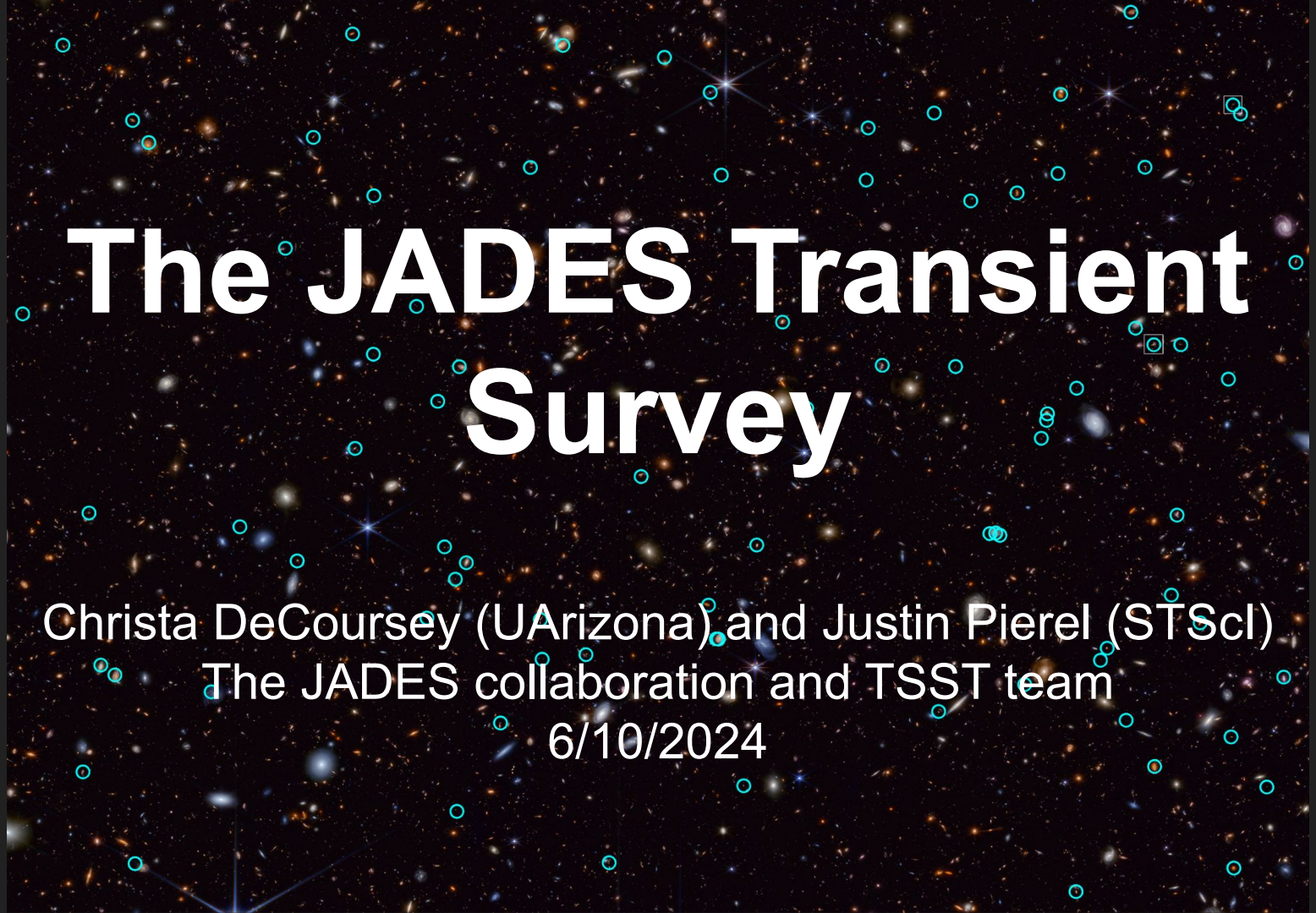
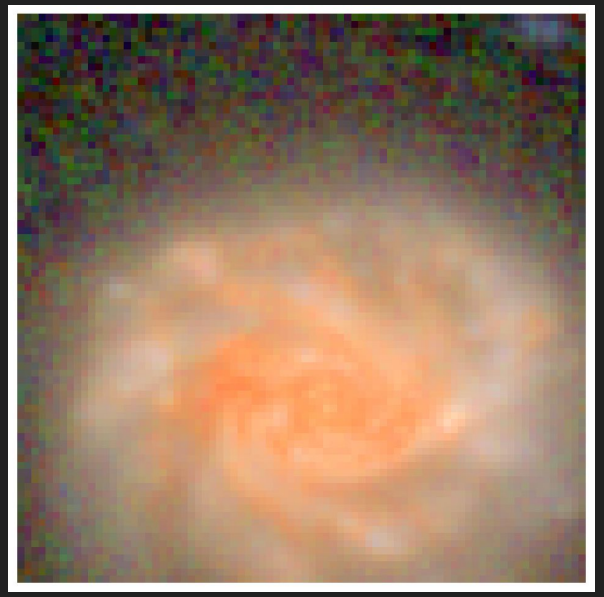
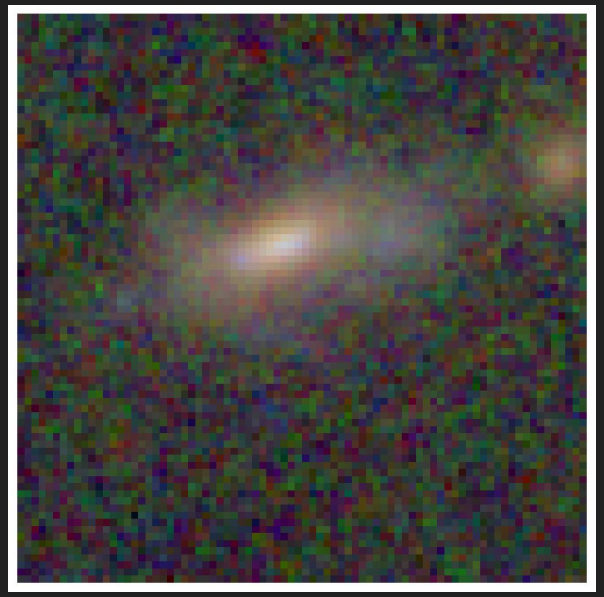


The JADES Transient Survey

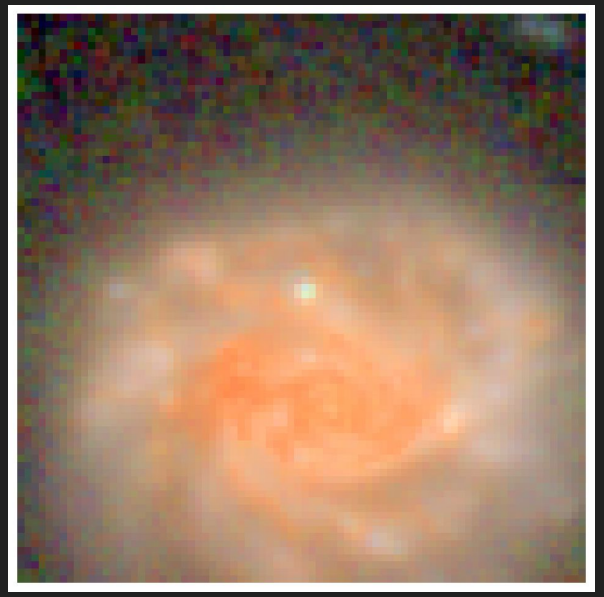
Christa DeCoursey (UArizona) and Justin Pierel (STScI)
The JADES collaboration and TSST team
6/10/2024

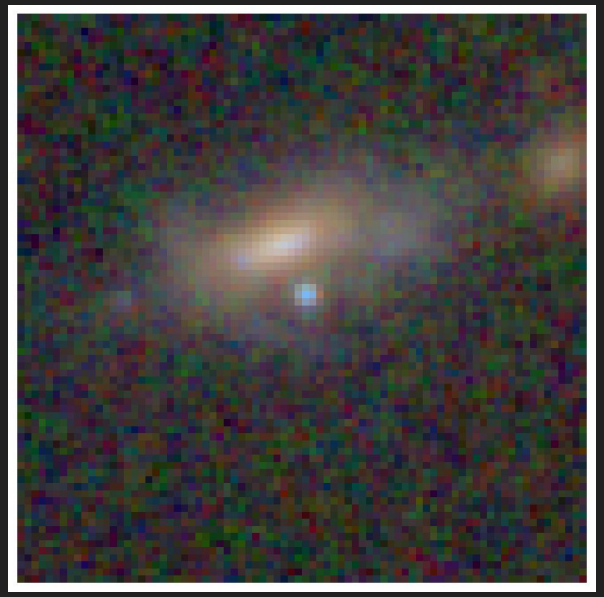
Finding Transients in JADES Deep Field

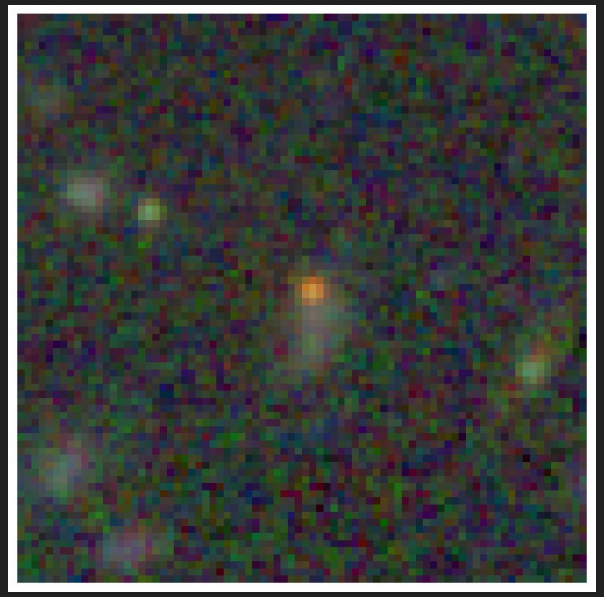




Finding Transients in JADES Deep Field







JADES Deep Field
Supernovae with HST

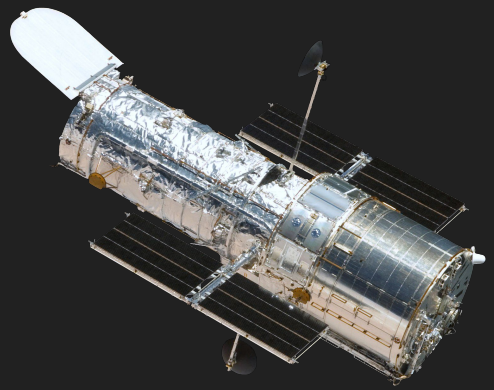
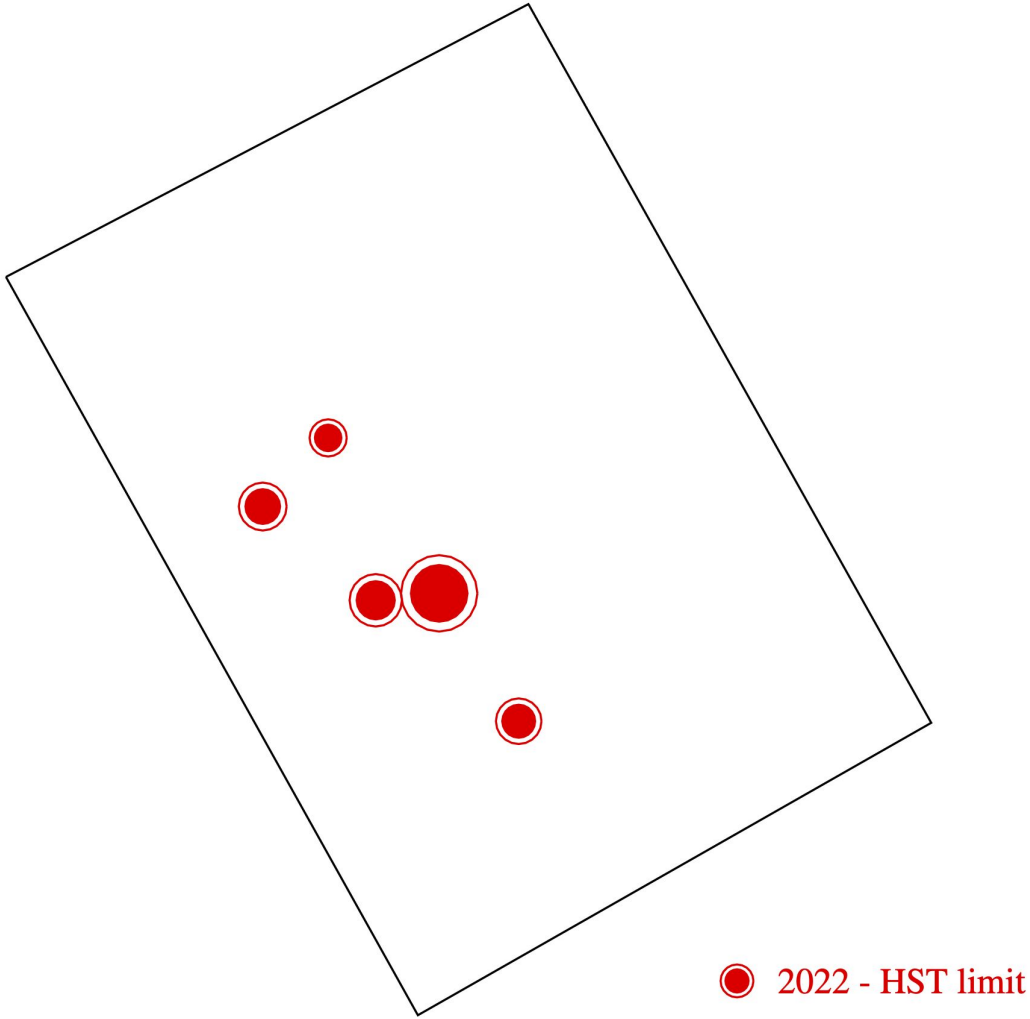


Image credit: https://commons.wikimedia.org/wiki/File:HST-SM4.png



JADES Deep Field
Supernovae with JWST

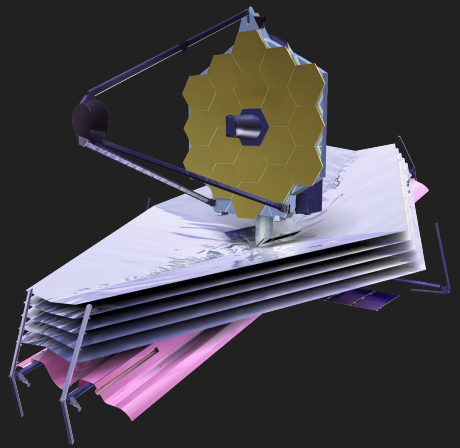
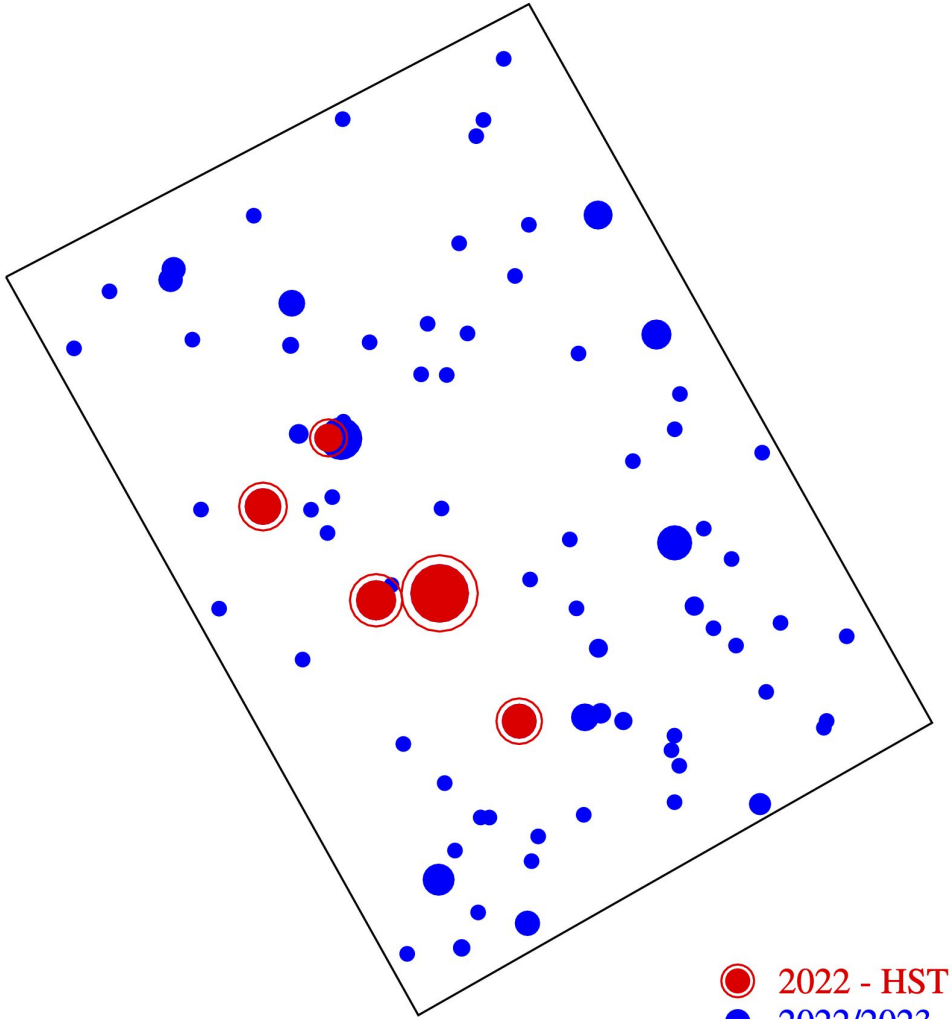
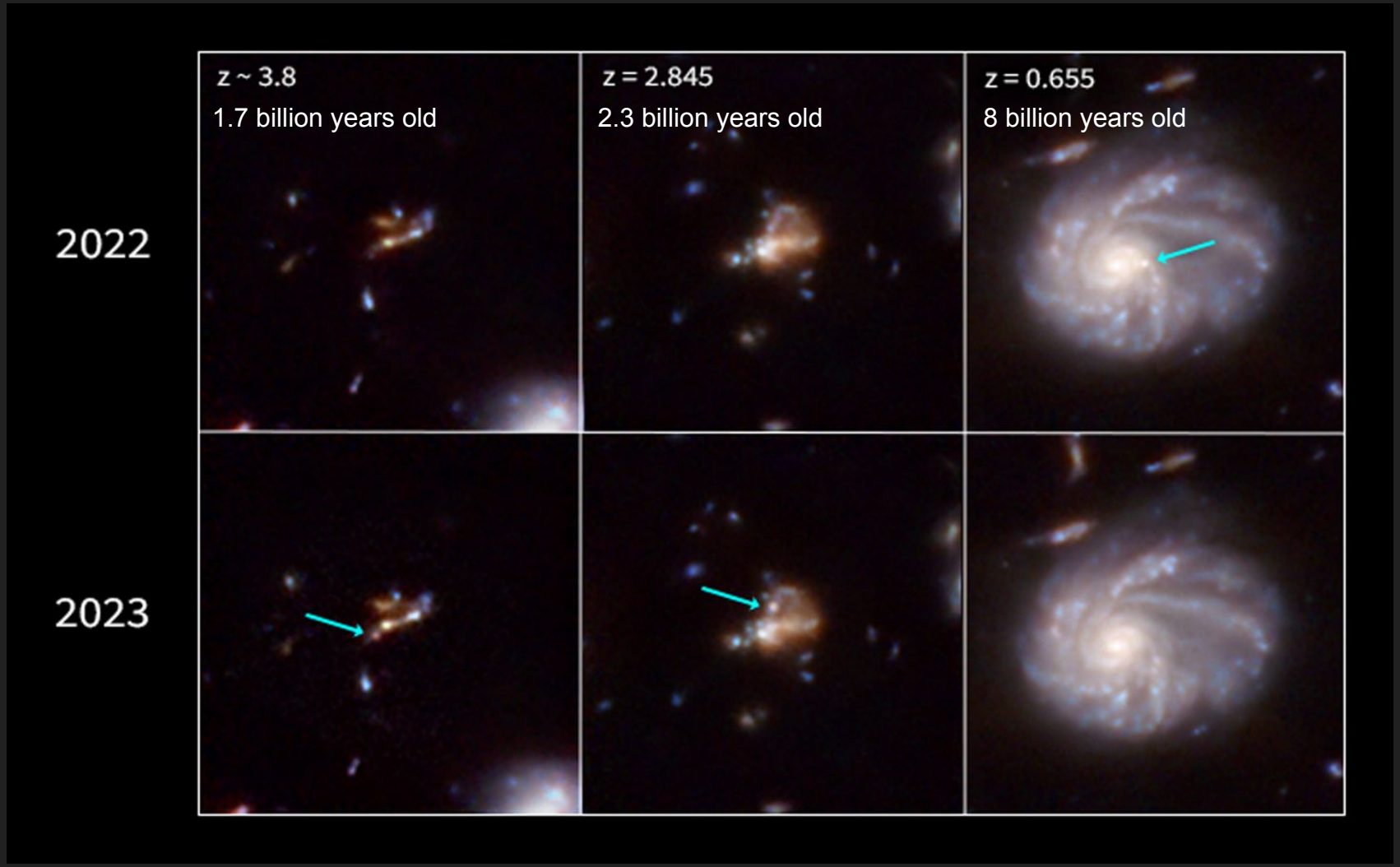
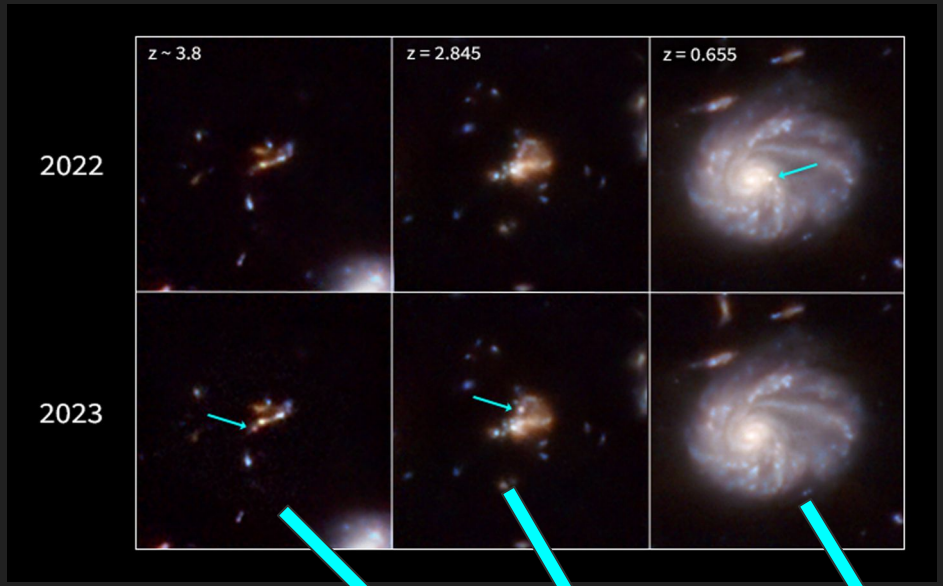
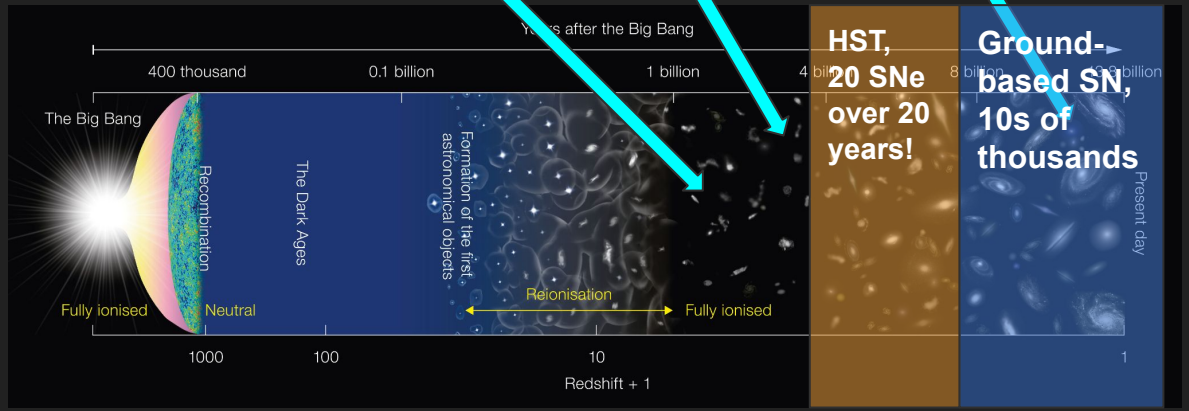


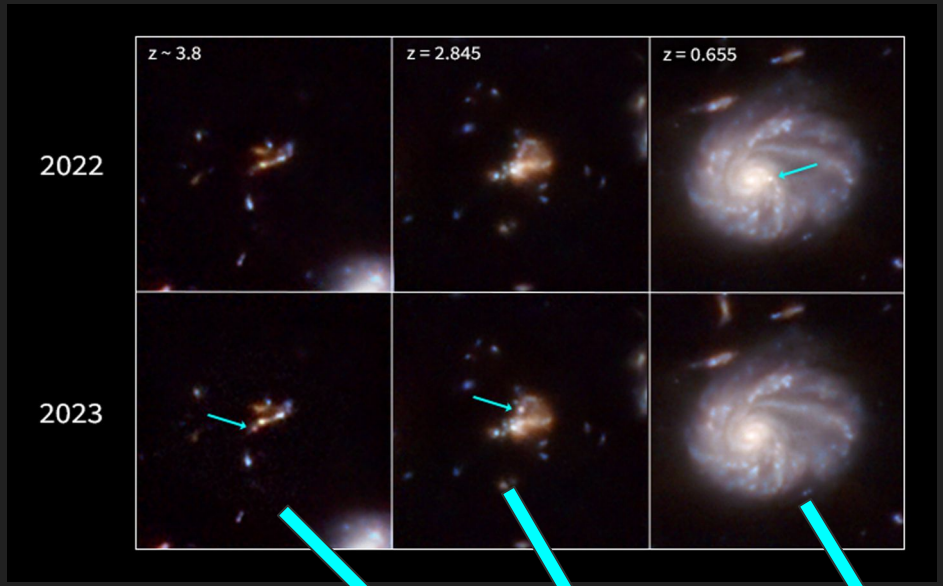
Image credit:
https://commons.wikimedia.org/wiki/File:JWST_spacecraft_model_2.png




z ~ 3.8
1.7 billion years old
z = 2.845
2.3 billion years old
z = 0.655
8 billion years old
2022
2023

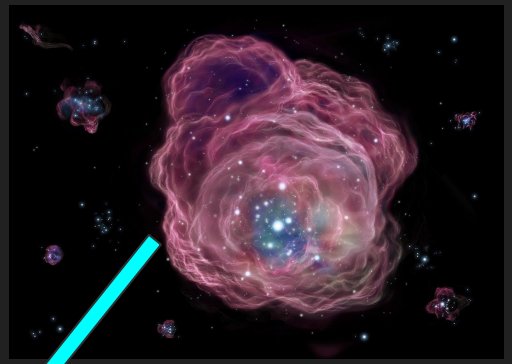

z ~ 3.8
z = 2.845
z = 0.655
2022
2023


Years after the Big Bang
400 thousand
0.1 billion
1 billion
4 billion
8 billion
13.8 billion
The Big Bang
Recombination
The Dark Ages
Formation of the first astronomical objects
Reionisation
Present day
Fully ionised
Neutral
Fully ionised
1000
100
10
1
Redshift + 1
HST, 20 SNe over 20 years!
Ground-based SN, 10s of thousands


z ~ 3.8
z = 2.845
z = 0.655
2022
2023


400 thousand
0.1 billion
The Big Bang
Recombination
The Dark Ages
Formation of the first astronomical objects
Fully ionised
Neutral
1000
100
10
Redshift + 1
Reionisation
Fully ionised
1
Present day
JWST, 40 SNe over 1 year!
HST, 20 SNe over 20 years!
Ground-based SN, 10s of thousands

Looking Towards the Future…



Population III Supernovae: the first generation of exploding stars

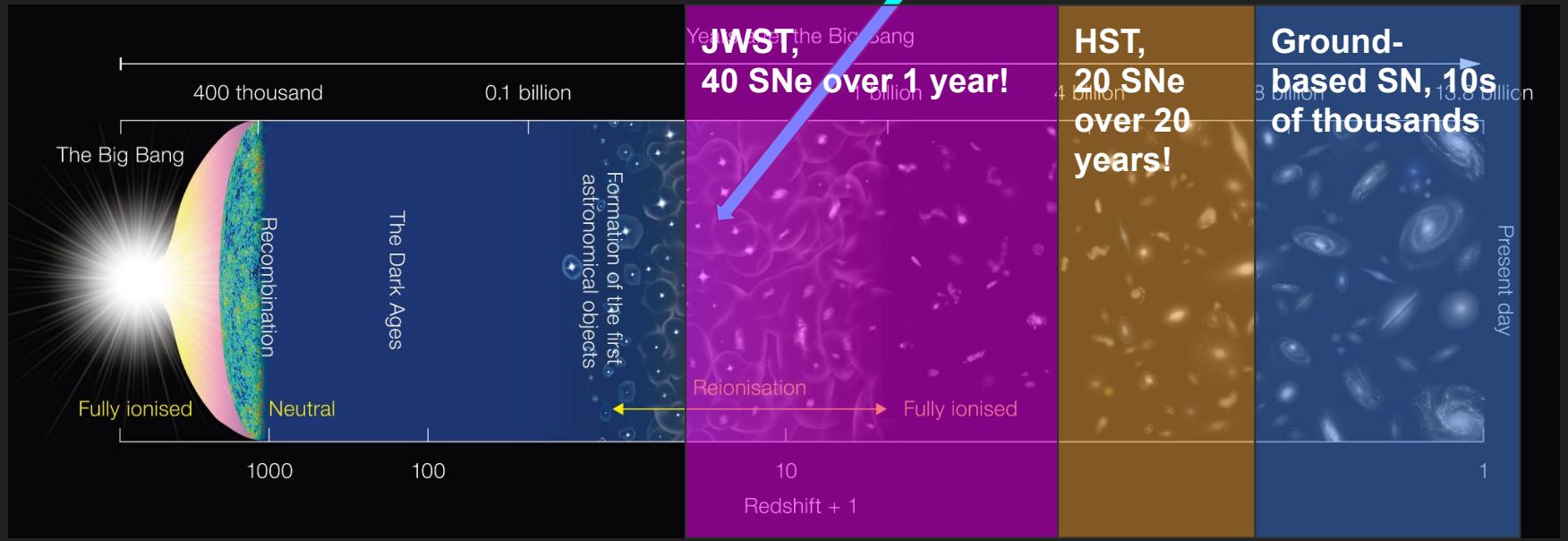
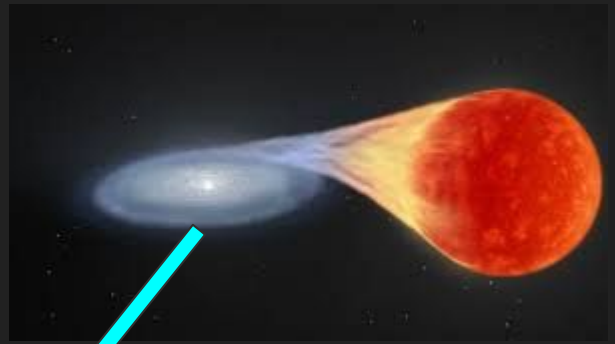


Image credit: NAOJ

Looking Towards the Future…



Extending SN Ia cosmology beyond z=2

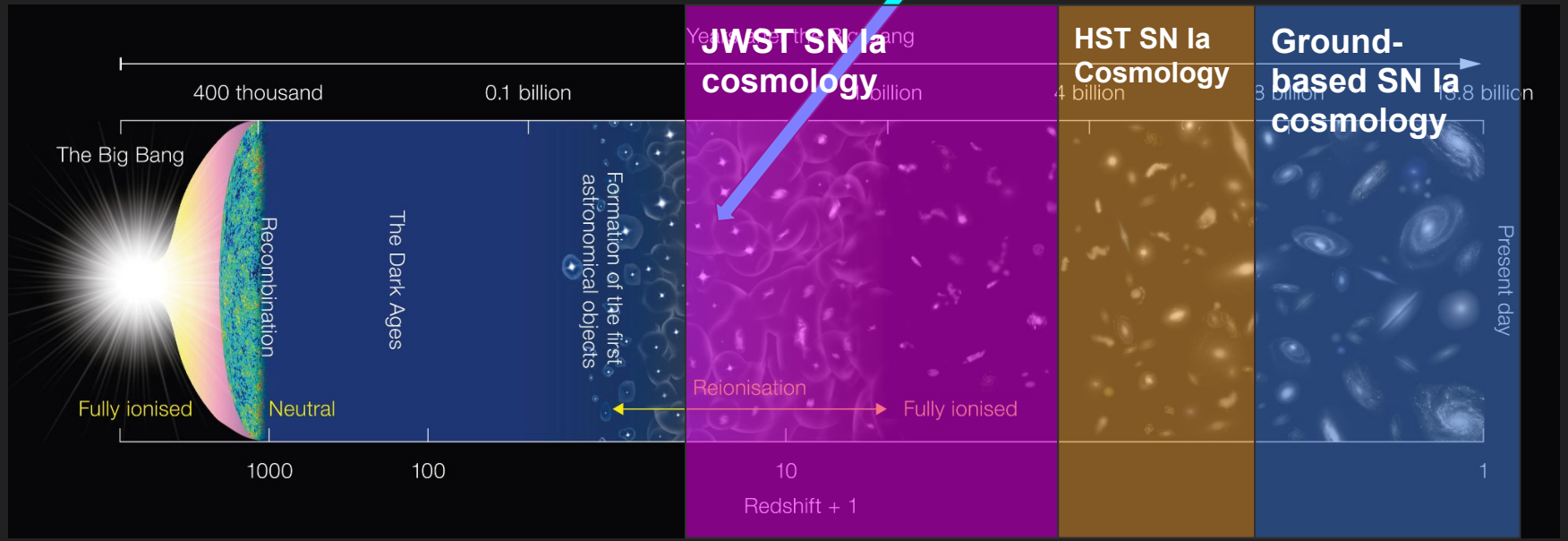
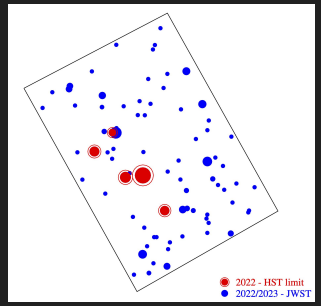


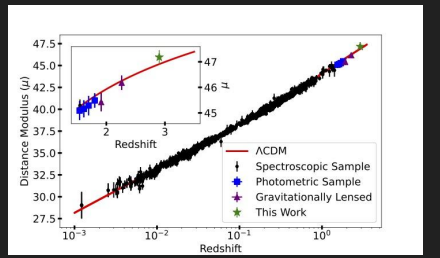
Image credit: NAOJ, CSIC

JADES Sample: DeCoursey et al. (2024)
arxiv:2406.05060

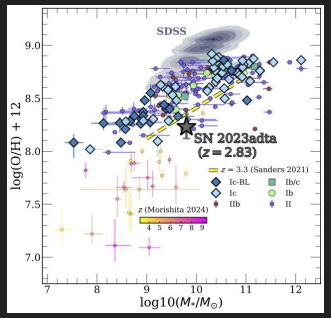


Extending SN Cosmology to z=3:

Pierel et al. (2024) arxiv:2406.05089



Type Ic-BL SN at z=2.83: Siebert et al. (2024)
arxiv:2406.05089



Extra Slides

Type Ia Supernovae: Standard Candles

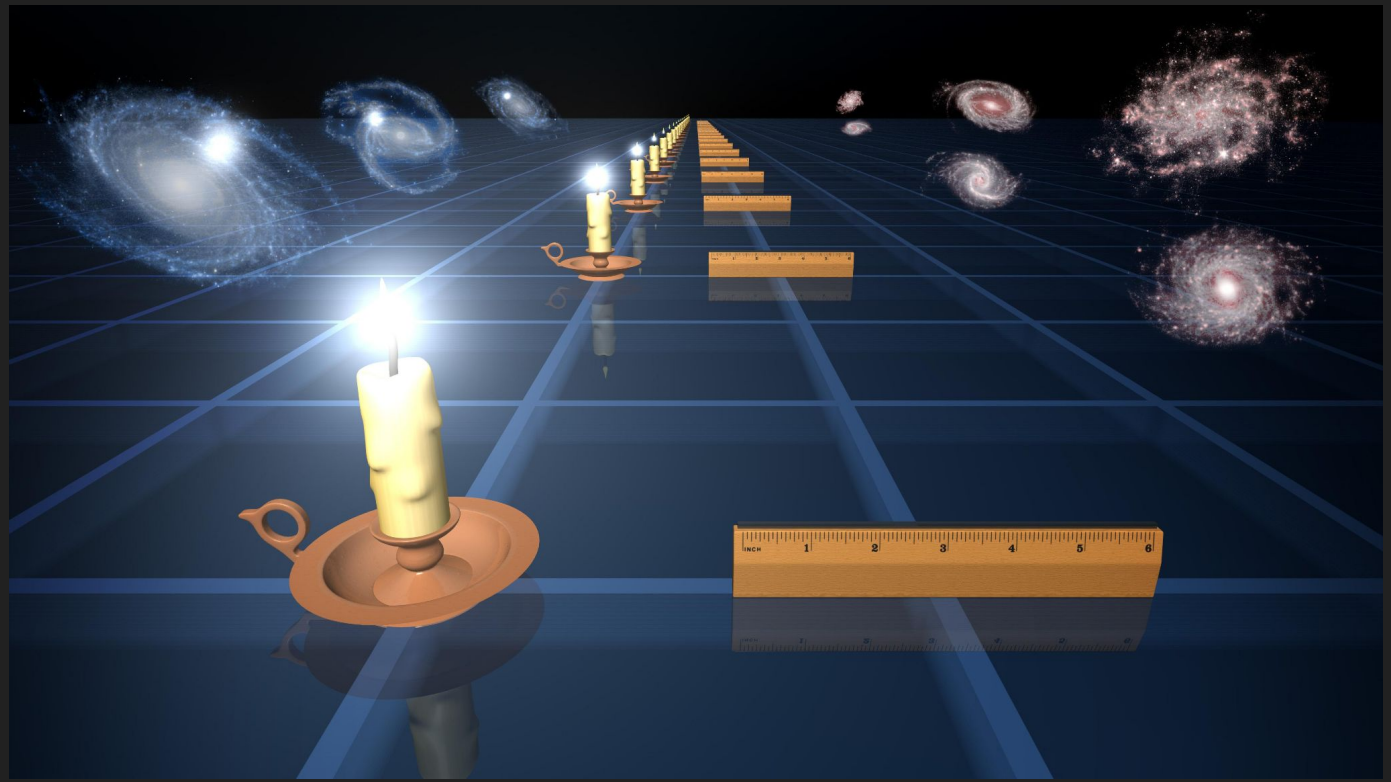
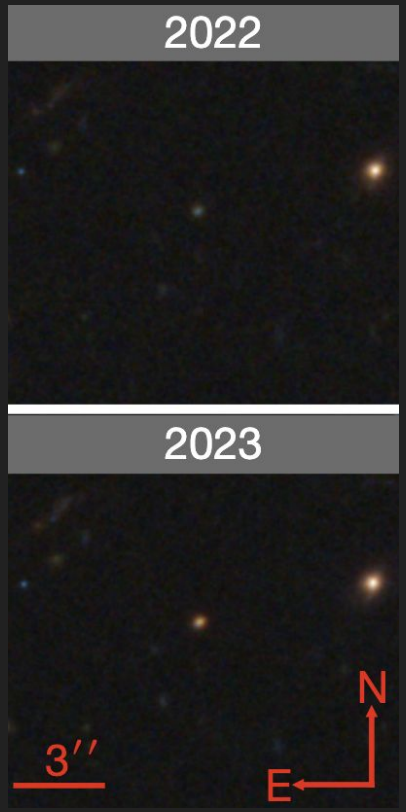
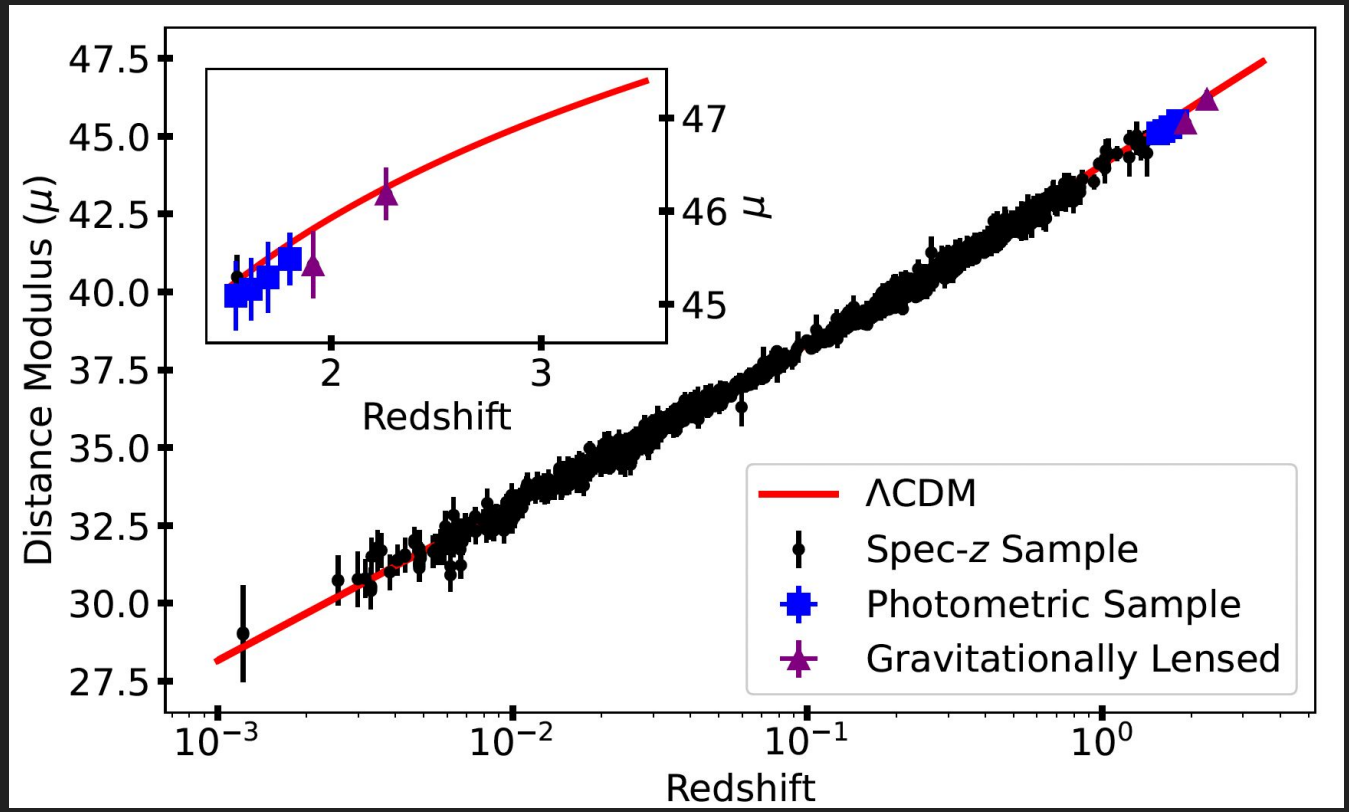


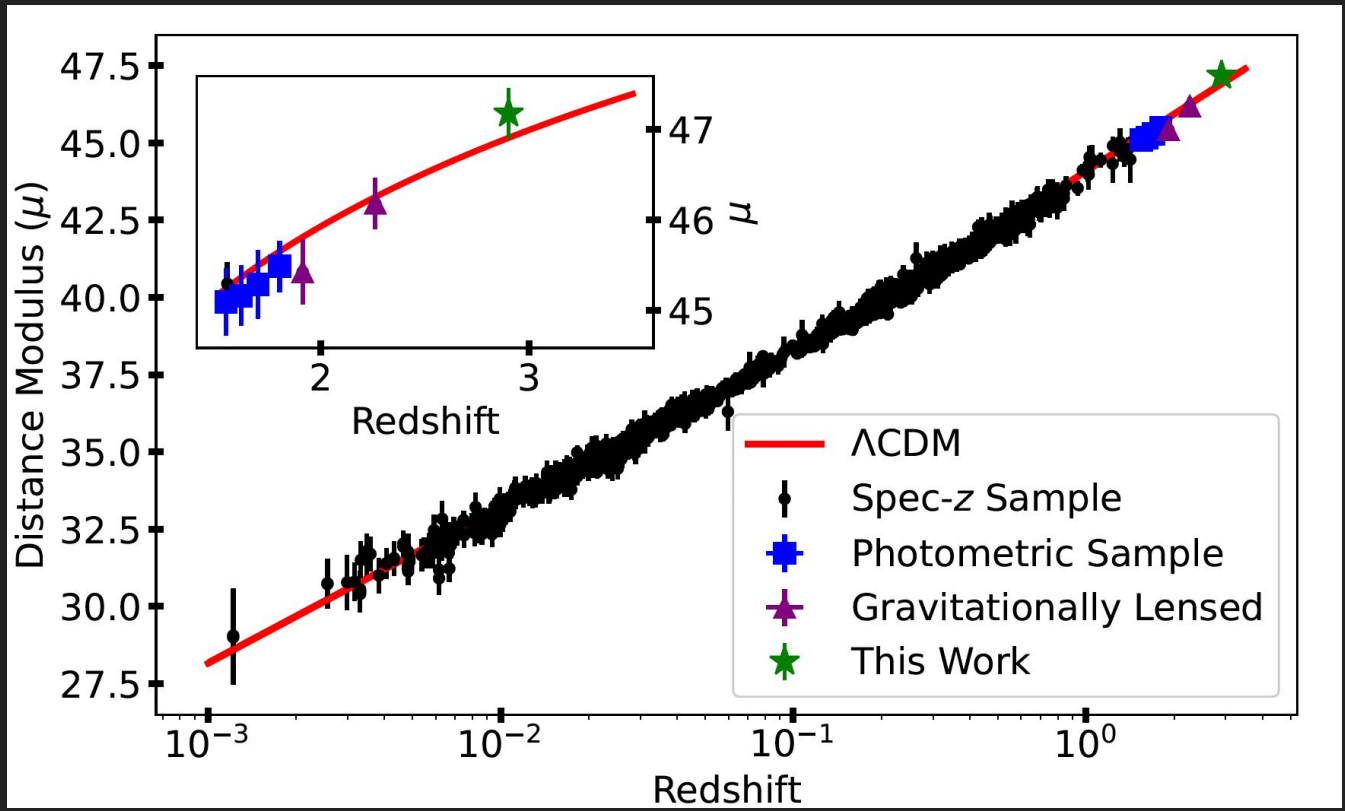
Image credit: NASA JPL

Highest Redshift Type Ia Supernova





Highest Redshift Type Ia Supernova



JADES: JWST Advanced Deep Extragalactic Survey

JADES Deep Field
Supernovae with JWST (Year 1)

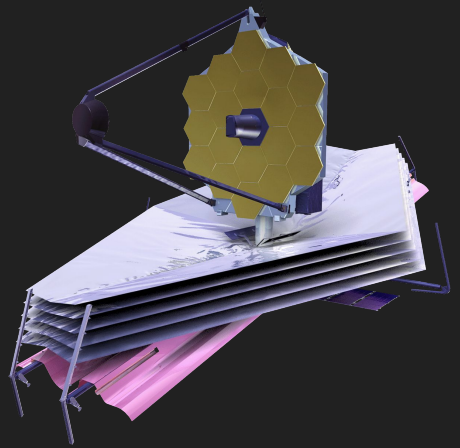
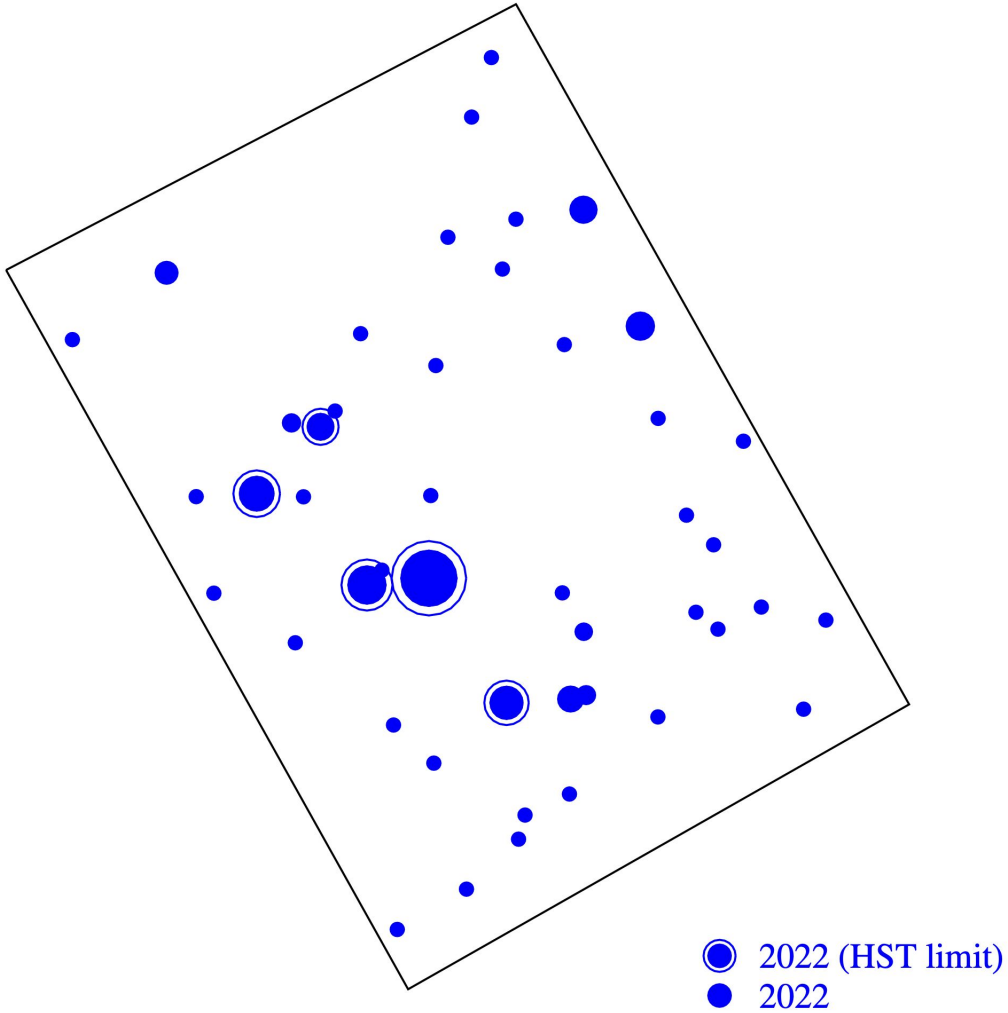
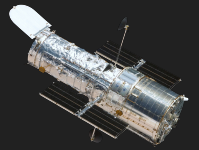


Image credit:
https://commons.wikimedia.org/wiki/File:JWST_spacecraft_model_2.png



Supernovae in the Early Universe



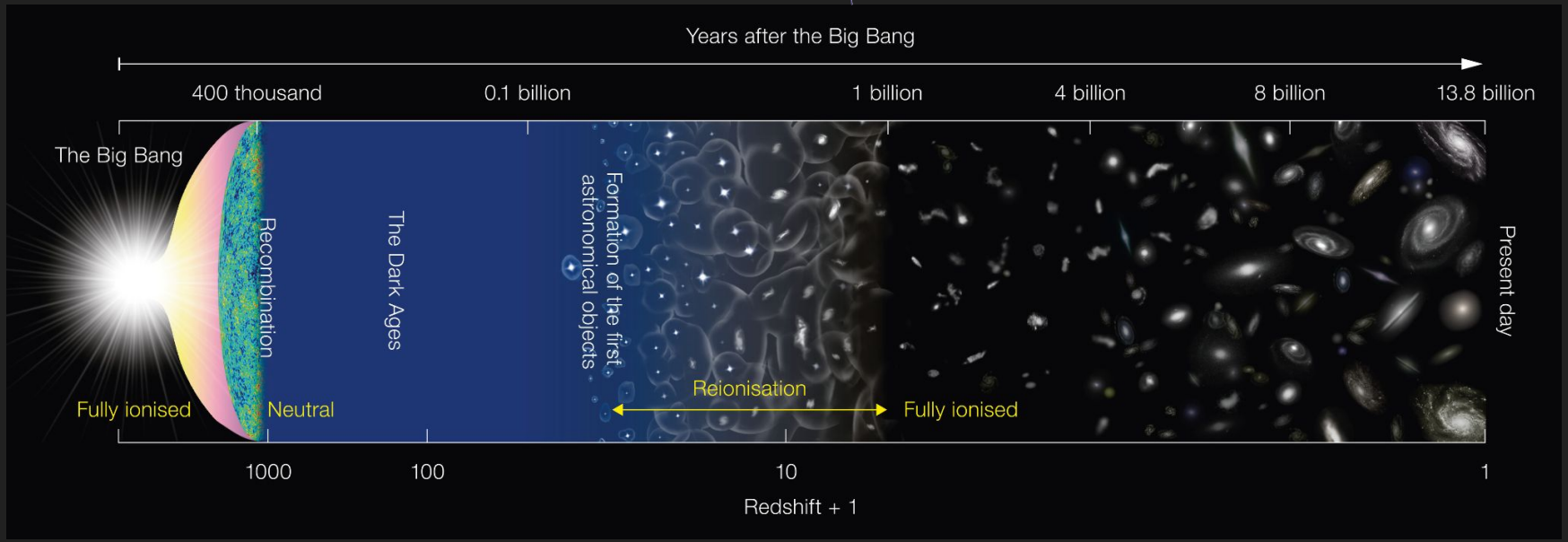


Image credit: NAOJ