

HST Frontier Fields



Portion of Abell 370 observed by HST ACS and WFC3/IR by the Frontier Fields Program

Frontier Fields Data products on MAST:

- [HST image mosaic reductions](#)
- [Frontier Fields lens models](#)

External blogs:

- [Frontier Fields blog for astronomers](#)
- [Frontier Fields outreach blog for the public](#)

Using Director's Discretionary (DD) observing time, HST undertook a revolutionary deep field observing program to peer deeper into the Universe than ever before and provide a first glimpse of JWST's universe.

These Frontier Fields combined the power of HST with the natural gravitational telescopes of high-magnification clusters of galaxies. Using both the Wide Field Camera 3 and Advanced Camera for Surveys in parallel, HST produced the deepest observations of clusters and their lensed galaxies ever obtained, and the second-deepest observations of blank fields (located near the clusters). These images revealed distant galaxy populations ~10-100 times fainter than any previously observed, improved our statistical understanding of galaxies during the epoch of reionization, and provided unprecedented measurements of the dark matter within massive clusters.

This program is based upon the 2012 recommendations from the [Hubble Deep Fields Initiative Science Working group](#).

For details, please see [Lotz et al. 2017 \(ApJL, 837, 97\)](#) "The Frontier Fields: Survey Design and Initial Results"

Cluster Name	z	Cluster		Parallel Field	
		RA	Dec	RA	Dec
Year 1:					
Abell 2744	0.308	00:14:21.2	-30:23:50.1	00:13:53.6	-30:22:54.3
MACSJ0416.1-2403	0.396	04:16:08.9	-24:04:28.7	04:16:33.1	-24:06:48.7
Year 2:					
MACSJ0717.5+3745	0.545	07:17:34.0	+37:44:49.0	07:17:17.0	+37:49:47.3
MACSJ1149.5+2223	0.543	11:49:36.3	+22:23:58.1	11:49:40.5	+22:18:02.3
Year 3:					
Abell S1063 (RXCJ2248.7-4431)	0.348	22:48:44.4	-44:31:48.5	22:49:17.7	-44:32:43.8
Abell 370	0.375	02:39:52.9	-01:34:36.5	02:40:13.4	-01:37:32.8