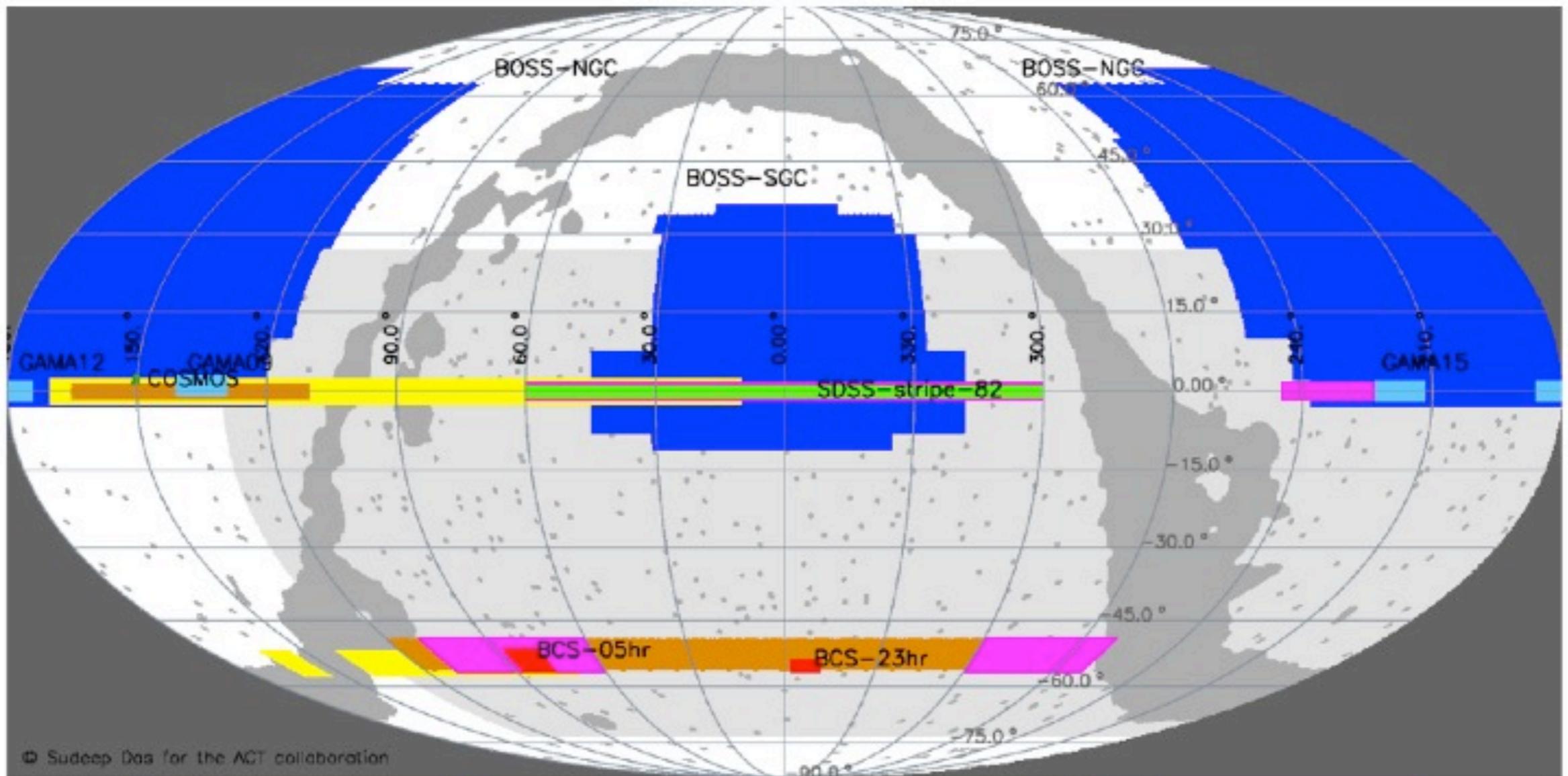


# Physical Properties of ACT Southern Clusters

Felipe Menanteau  
(Rutgers University)

# ACT Sky Coverage



2007

2008

2009+2010

Stripe 82

BCS

BOSS

GAMA

ACT Range

Mask

# The Southern ACT-SZ cluster sample (455 sq-degree area)

**Table 2**  
ACT 2008 clusters

ACT Descriptor	R.A. (J2000)	Dec. (J2000)	Redshift	SNR	Alt Name
ACT-CL J0145-5301	01:45:03.6	-53:01:23.4	0.118 <sup>a</sup>	4.7 (4.0)	Abell 2941
ACT-CL J0641-4949	06:41:37.8	-49:46:55.0	0.146 <sup>b</sup>	4.9 (4.9)	Abell 3402
ACT-CL J0645-5413	06:45:29.5	-54:13:37.0	0.167 <sup>a</sup>	7.1 (7.1)	Abell 3404
ACT-CL J0638-5358	06:38:49.4	-53:58:40.8	0.222 <sup>a</sup>	10.6 (10.0)	Abell S0592
ACT-CL J0516-5430	05:16:37.4	-54:30:01.5	0.294 <sup>c</sup>	5.2 (4.7)	Abell S0520/SPT-CL J0516-5430
ACT-CL J0658-5557	06:58:33.1	-55:57:07.2	0.296 <sup>d</sup>	11.6 (11.5)	1E0657-56 (Bullet)
ACT-CL J0245-5302	02:45:35.8	-53:02:16.8	0.300 <sup>e</sup>	8.3 (9.1)	Abell S0295
ACT-CL J0217-5245	02:17:12.6	-52:44:49.0	0.343 <sup>f</sup>	4.5 (4.1)	RXC J0217.2-5244
ACT-CL J0237-4939	02:37:01.7	-49:38:10.0	0.40 ± 0.05	4.9 (3.9)	
ACT-CL J0707-5522	07:07:04.7	-55:23:08.5	0.43 ± 0.06	4.2 (...)	
ACT-CL J0235-5121	02:35:45.3	-51:21:05.2	0.43 ± 0.07	5.7 (6.2)	
ACT-CL J0330-5227	03:30:56.8	-52:28:13.7	0.440 <sup>g</sup>	7.4 (6.1)	Abell 3128(NE)
ACT-CL J0509-5341	05:09:21.4	-53:42:12.3	0.461 <sup>h</sup>	4.4 (4.8)	SPT-CL J0509-5342
ACT-CL J0304-4921	03:04:16.0	-49:21:26.3	0.47 ± 0.05	5.0 (3.9)	
ACT-CL J0215-5212	02:15:12.3	-52:12:25.3	0.51 ± 0.05	4.8 (4.9)	
ACT-CL J0438-5419	04:38:17.7	-54:19:20.7	0.54 ± 0.05	8.8 (8.0)	
ACT-CL J0346-5438	03:46:55.5	-54:38:54.8	0.55 ± 0.05	4.4 (4.4)	
ACT-CL J0232-5257	02:32:46.2	-52:57:50.0	0.59 ± 0.07	5.2 (4.7)	
ACT-CL J0559-5249	05:59:43.2	-52:49:27.1	0.611 <sup>i</sup>	5.1 (5.1)	SPT-CL J0559-5249
ACT-CL J0616-5227	06:16:34.2	-52:27:13.3	0.71 ± 0.10	6.3 (5.9)	
ACT-CL J0102-4915	01:02:52.5	-49:14:58.0	0.75 ± 0.04	8.8 (9.0)	
ACT-CL J0528-5259	05:28:05.3	-52:59:52.8	0.768 <sup>h</sup>	4.7 (...)	SPT-CL J0528-5300
ACT-CL J0546-5345	05:46:37.7	-53:45:31.1	1.066 <sup>h</sup>	7.2 (6.5)	SPT-CL J0546-5345

from Menanteau et al. (2010a), *ApJ*, 723, 1523

# The Southern ACT-SZ cluster sample (455 sq-degree area)

Table 2  
ACT 2008 clusters

ACT Descriptor	R.A. (J2000)	Dec. (J2000)	Redshift	SNR	Alt Name
ACT-CL J0145-5301	01:45:03.6	-53:01:23.4	0.118 <sup>a</sup>	4.7 (4.0)	Abell 2941
ACT-CL J0641-4949	06:41:37.8	-49:46:55.0	0.146 <sup>b</sup>	4.9 (4.9)	Abell 3402
ACT-CL J0645-5413	06:45:29.5	-54:13:37.0	0.167 <sup>a</sup>	7.1 (7.1)	Abell 3404
ACT-CL J0638-5358	06:38:49.4	-53:58:40.8	0.222 <sup>a</sup>	10.6 (10.0)	Abell S0592
ACT-CL J0516-5430	05:16:37.4	-54:30:01.5	0.294 <sup>c</sup>	5.2 (4.7)	Abell S0520/SPT-CL J0516-5430
ACT-CL J0658-5557	06:58:33.1	-55:57:07.2	0.296 <sup>d</sup>	11.6 (11.5)	1E0657-56 (Bullet)
ACT-CL J0245-5302	02:45:35.8	-53:02:16.8	0.300 <sup>e</sup>	8.3 (9.1)	Abell S0295
ACT-CL J0217-5245	02:17:12.6	-52:44:49.0	0.343 <sup>f</sup>	4.5 (4.1)	RXC J0217.2-5244
ACT-CL J0237-4939	02:37:01.7	-49:38:10.0	0.40 ± 0.05	4.9 (3.9)	
ACT-CL J0707-5522	07:07:04.7	-55:23:08.5	0.43 ± 0.06	4.2 (...)	
ACT-CL J0235-5121	02:35:45.3	-51:21:05.2	0.43 ± 0.07	5.7 (6.2)	
ACT-CL J0330-5227	03:30:56.8	-52:28:13.7	0.440 <sup>g</sup>	7.4 (6.1)	Abell 3128(NE)
ACT-CL J0509-5341	05:09:21.4	-53:42:12.3	0.461 <sup>h</sup>	4.4 (4.8)	SPT-CL J0509-5342
ACT-CL J0304-4921	03:04:16.0	-49:21:26.3	0.47 ± 0.05	5.0 (3.9)	
ACT-CL J0215-5212	02:15:12.3	-52:12:25.3	0.51 ± 0.05	4.8 (4.9)	
ACT-CL J0438-5419	04:38:17.7	-54:19:20.7	0.54 ± 0.05	8.8 (8.0)	
ACT-CL J0346-5438	03:46:55.5	-54:38:54.8	0.55 ± 0.05	4.4 (4.4)	
ACT-CL J0232-5257	02:32:46.2	-52:57:50.0	0.59 ± 0.07	5.2 (4.7)	
ACT-CL J0559-5249	05:59:43.2	-52:49:27.1	0.611 <sup>i</sup>	5.1 (5.1)	SPT-CL J0559-5249
ACT-CL J0616-5227	06:16:34.2	-52:27:13.3	0.71 ± 0.10	6.3 (5.9)	
ACT-CL J0102-4915	01:02:52.5	-49:14:58.0	0.75 ± 0.04	8.8 (9.0)	
ACT-CL J0528-5259	05:28:05.3	-52:59:52.8	0.768 <sup>h</sup>	4.7 (...)	SPT-CL J0528-5300
ACT-CL J0546-5345	05:46:37.7	-53:45:31.1	1.066 <sup>h</sup>	7.2 (6.5)	SPT-CL J0546-5345

(9) known

from Menanteau et al. (2010a), ApJ, 723, 1523

# The Southern ACT-SZ cluster sample (455 sq-degree area)

Table 2  
ACT 2008 clusters

ACT Descriptor	R.A. (J2000)	Dec. (J2000)	Redshift	SNR	Alt Name
ACT-CL J0145-5301	01:45:03.6	-53:01:23.4	0.118 <sup>a</sup>	4.7 (4.0)	Abell 2941
ACT-CL J0641-4949	06:41:37.8	-49:46:55.0	0.146 <sup>b</sup>	4.9 (4.9)	Abell 3402
ACT-CL J0645-5413	06:45:29.5	-54:13:37.0	0.167 <sup>a</sup>	7.1 (7.1)	Abell 3404
ACT-CL J0638-5358	06:38:49.4	-53:58:40.8	0.222 <sup>a</sup>	10.6 (10.0)	Abell S0592
ACT-CL J0516-5430	05:16:37.4	-54:30:01.5	0.294 <sup>c</sup>	5.2 (4.7)	Abell S0520/SPT-CL J0516-5430
ACT-CL J0658-5557	06:58:33.1	-55:57:07.2	0.296 <sup>d</sup>	11.6 (11.5)	1E0657-56 (Bullet)
ACT-CL J0245-5302	02:45:35.8	-53:02:16.8	0.300 <sup>e</sup>	8.3 (9.1)	Abell S0295
ACT-CL J0217-5245	02:17:12.6	-52:44:49.0	0.343 <sup>f</sup>	4.5 (4.1)	RXC J0217.2-5244
ACT-CL J0237-4939	02:37:01.7	-49:38:10.0	0.40 ± 0.05	4.9 (3.9)	
ACT-CL J0707-5522	07:07:04.7	-55:23:08.5	0.43 ± 0.06	4.2 (...)	
ACT-CL J0235-5121	02:35:45.3	-51:21:05.2	0.43 ± 0.07	5.7 (6.2)	
ACT-CL J0330-5227	03:30:56.8	-52:28:13.7	0.440 <sup>g</sup>	7.4 (6.1)	Abell 3128(NE)
ACT-CL J0509-5341	05:09:21.4	-53:42:12.3	0.461 <sup>h</sup>	4.4 (4.8)	SPT-CL J0509-5342
ACT-CL J0304-4921	03:04:16.0	-49:21:26.3	0.47 ± 0.05	5.0 (3.9)	
ACT-CL J0215-5212	02:15:12.3	-52:12:25.3	0.51 ± 0.05	4.8 (4.9)	
ACT-CL J0438-5419	04:38:17.7	-54:19:20.7	0.54 ± 0.05	8.8 (8.0)	
ACT-CL J0346-5438	03:46:55.5	-54:38:54.8	0.55 ± 0.05	4.4 (4.4)	
ACT-CL J0232-5257	02:32:46.2	-52:57:50.0	0.59 ± 0.07	5.2 (4.7)	
ACT-CL J0559-5249	05:59:43.2	-52:49:27.1	0.611 <sup>i</sup>	5.1 (5.1)	SPT-CL J0559-5249
ACT-CL J0616-5227	06:16:34.2	-52:27:13.3	0.71 ± 0.10	6.3 (5.9)	
ACT-CL J0102-4915	01:02:52.5	-49:14:58.0	0.75 ± 0.04	8.8 (9.0)	
ACT-CL J0528-5259	05:28:05.3	-52:59:52.8	0.768 <sup>h</sup>	4.7 (...)	SPT-CL J0528-5300
ACT-CL J0546-5345	05:46:37.7	-53:45:31.1	1.066 <sup>h</sup>	7.2 (6.5)	SPT-CL J0546-5345

(9) known

(10) new

from Menanteau et al. (2010a), ApJ, 723, 1523

# The Southern ACT-SZ cluster sample (455 sq-degree area)

Table 2  
ACT 2008 clusters

ACT Descriptor	R.A. (J2000)	Dec. (J2000)	Redshift	SNR	Alt Name
ACT-CL J0145-5301	01:45:03.6	-53:01:23.4	0.118 <sup>a</sup>	4.7 (4.0)	Abell 2941
ACT-CL J0641-4949	06:41:37.8	-49:46:55.0	0.146 <sup>b</sup>	4.9 (4.9)	Abell 3402
ACT-CL J0645-5413	06:45:29.5	-54:13:37.0	0.167 <sup>a</sup>	7.1 (7.1)	Abell 3404
ACT-CL J0638-5358	06:38:49.4	-53:58:40.8	0.222 <sup>a</sup>	10.6 (10.0)	Abell S0592
ACT-CL J0516-5430	05:16:37.4	-54:30:01.5	0.294 <sup>c</sup>	5.2 (4.7)	Abell S0520/SPT-CL J0516-5430
ACT-CL J0658-5557	06:58:33.1	-55:57:07.2	0.296 <sup>d</sup>	11.6 (11.5)	1E0657-56 (Bullet)
ACT-CL J0245-5302	02:45:35.8	-53:02:16.8	0.300 <sup>e</sup>	8.3 (9.1)	Abell S0295
ACT-CL J0217-5245	02:17:12.6	-52:44:49.0	0.343 <sup>f</sup>	4.5 (4.1)	RXC J0217.2-5244
ACT-CL J0237-4939	02:37:01.7	-49:38:10.0	0.40 ± 0.05	4.9 (3.9)	
ACT-CL J0707-5522	07:07:04.7	-55:23:08.5	0.43 ± 0.06	4.2 (...)	
ACT-CL J0235-5121	02:35:45.3	-51:21:05.2	0.43 ± 0.07	5.7 (6.2)	
ACT-CL J0330-5227	03:30:56.8	-52:28:13.7	0.440 <sup>g</sup>	7.4 (6.1)	Abell 3128(NE)
ACT-CL J0509-5341	05:09:21.4	-53:42:12.3	0.461 <sup>h</sup>	4.4 (4.8)	SPT-CL J0509-5342
ACT-CL J0304-4921	03:04:16.0	-49:21:26.3	0.47 ± 0.05	5.0 (3.9)	
ACT-CL J0215-5212	02:15:12.3	-52:12:25.3	0.51 ± 0.05	4.8 (4.9)	
ACT-CL J0438-5419	04:38:17.7	-54:19:20.7	0.54 ± 0.05	8.8 (8.0)	
ACT-CL J0346-5438	03:46:55.5	-54:38:54.8	0.55 ± 0.05	4.4 (4.4)	
ACT-CL J0232-5257	02:32:46.2	-52:57:50.0	0.59 ± 0.07	5.2 (4.7)	
ACT-CL J0559-5249	05:59:43.2	-52:49:27.1	0.611 <sup>i</sup>	5.1 (5.1)	SPT-CL J0559-5249
ACT-CL J0616-5227	06:16:34.2	-52:27:13.3	0.71 ± 0.10	6.3 (5.9)	
ACT-CL J0102-4915	01:02:52.5	-49:14:58.0	0.75 ± 0.04	8.8 (9.0)	
ACT-CL J0528-5259	05:28:05.3	-52:59:52.8	0.768 <sup>h</sup>	4.7 (...)	SPT-CL J0528-5300
ACT-CL J0546-5345	05:46:37.7	-53:45:31.1	1.066 <sup>h</sup>	7.2 (6.5)	SPT-CL J0546-5345

(9) known

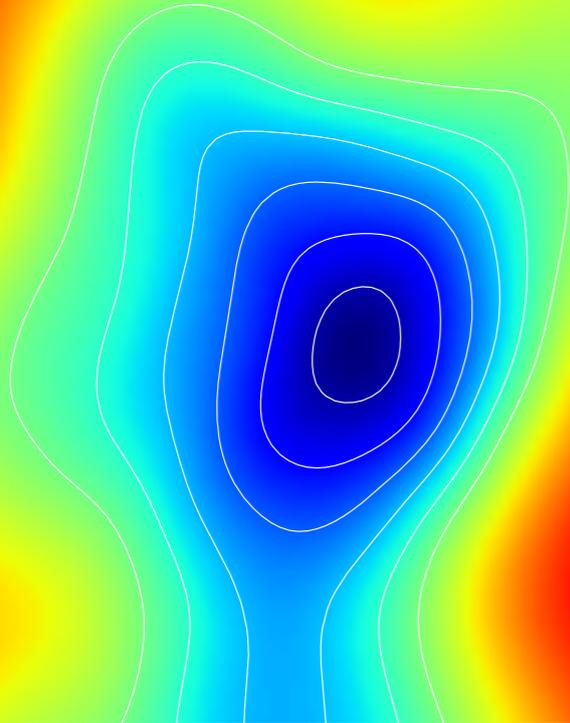
(14) SZ discovered

from Menanteau et al. (2010a), ApJ, 723, 1523

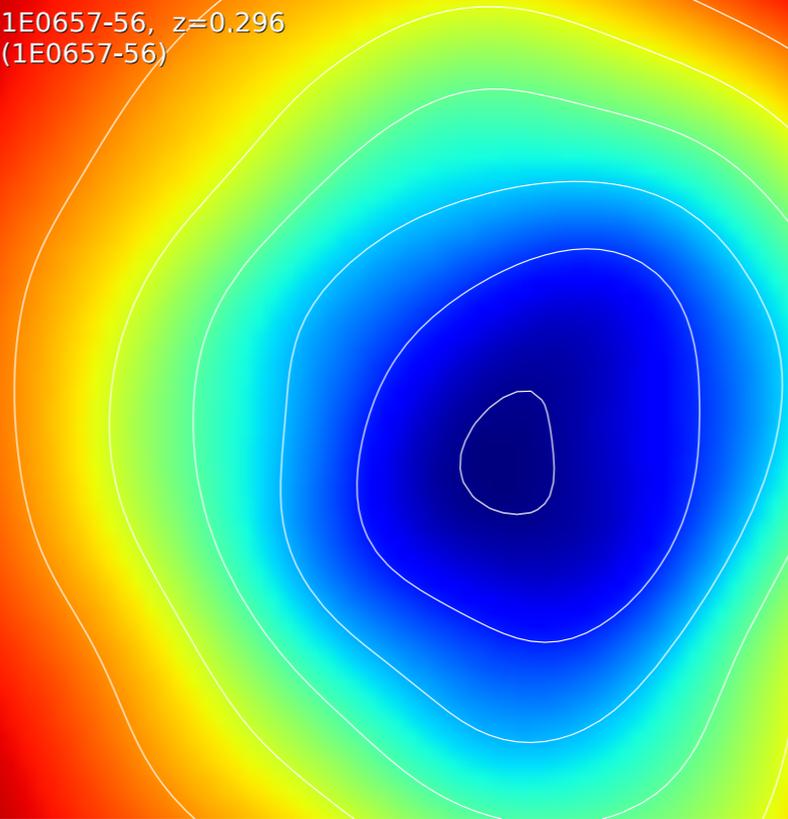
# Some of ACT Southern Clusters

# Some Previously Known Clusters

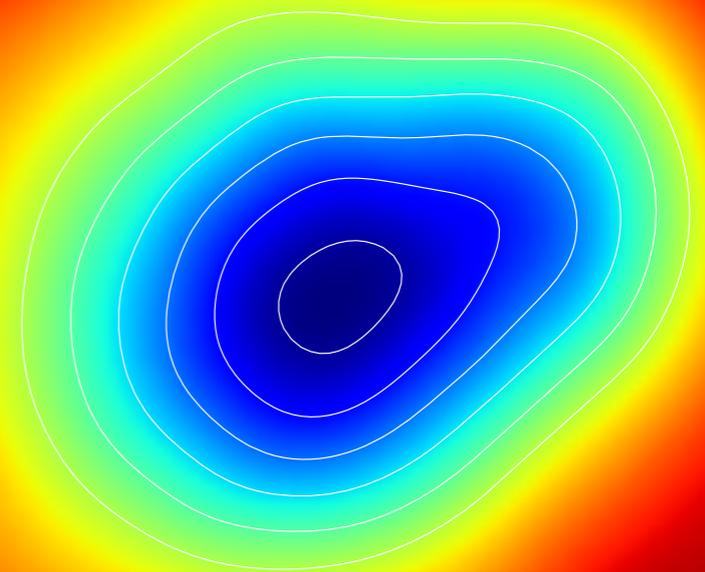
ACT-CL J0516-5430,  $z=0.295$   
(AS0520)



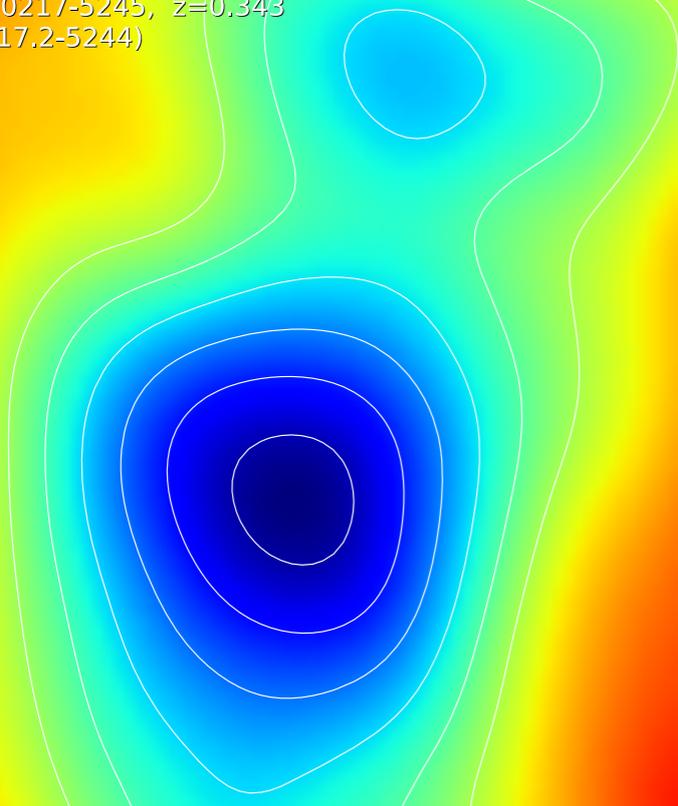
1E0657-56,  $z=0.296$   
(1E0657-56)



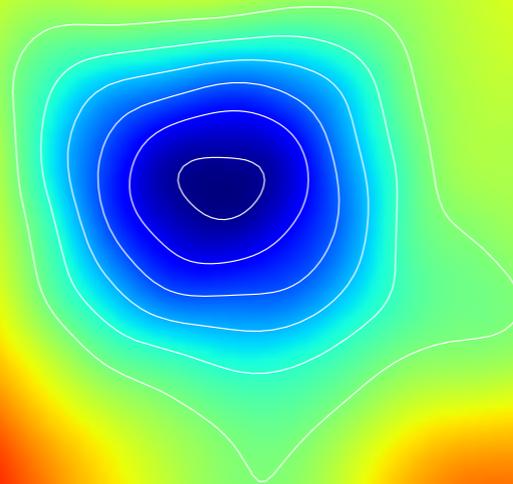
ACT-CL J0245-5302,  $z=0.300$   
(AS0295)



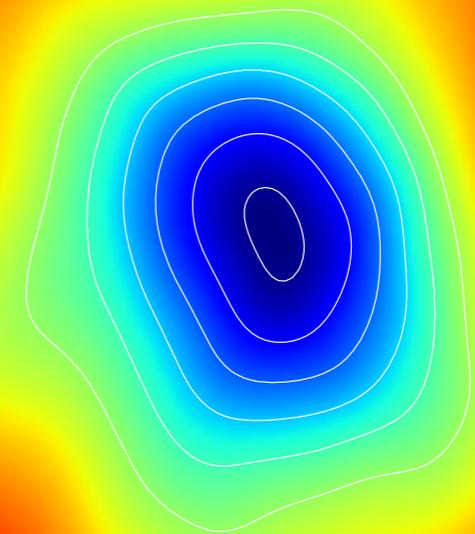
ACT-CL J0217-5245,  $z=0.343$   
(RXCJ0217.2-5244)



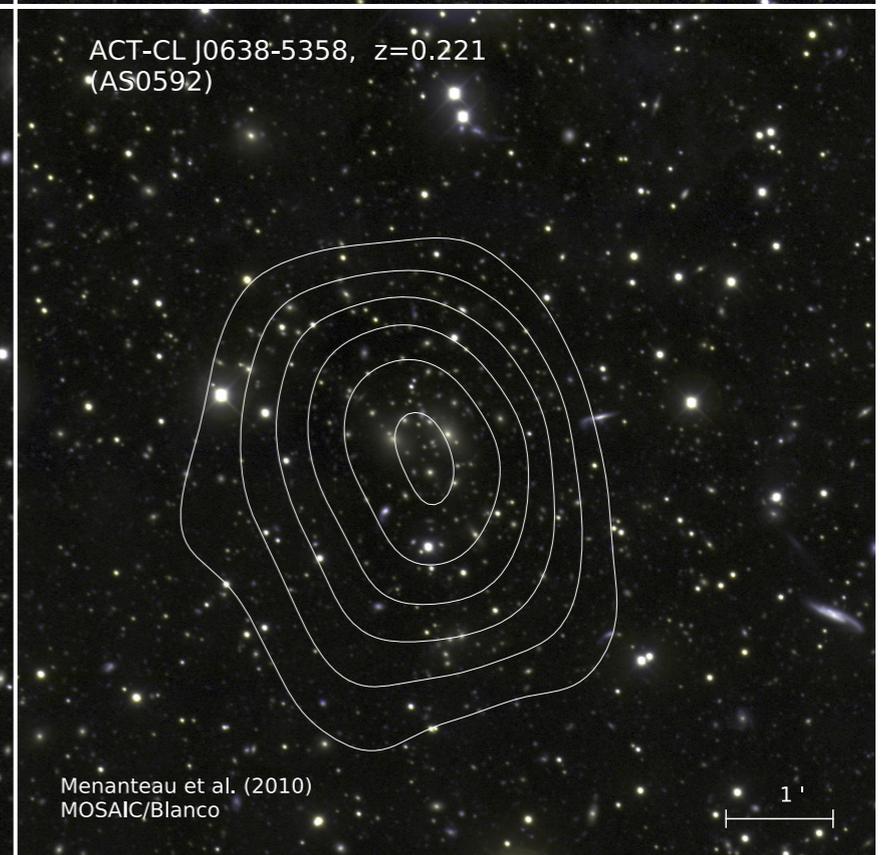
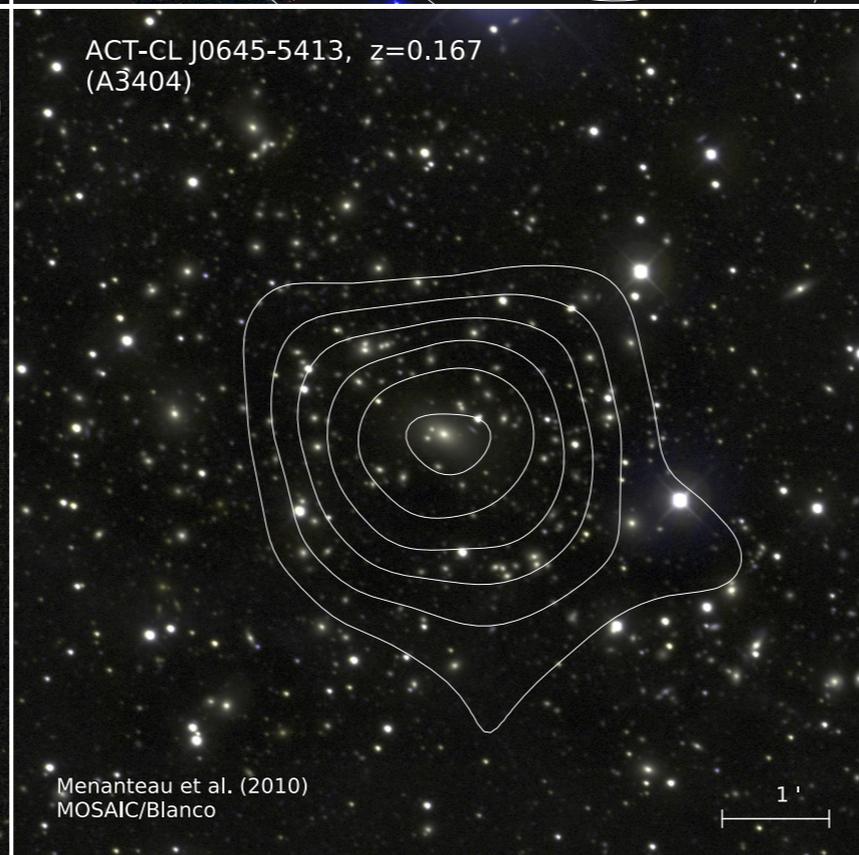
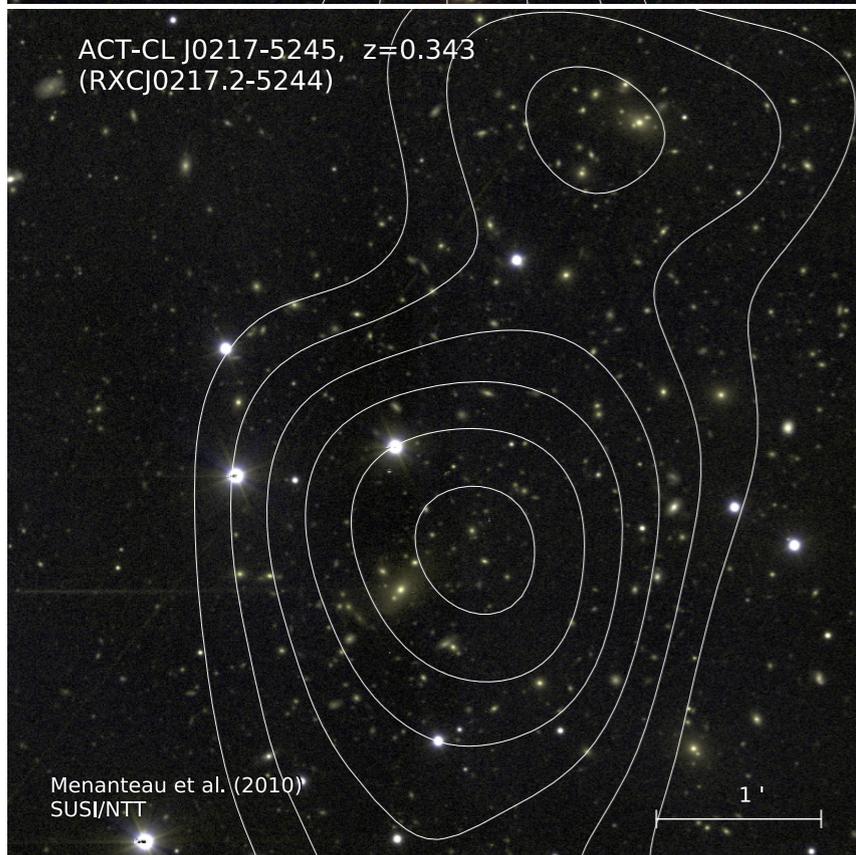
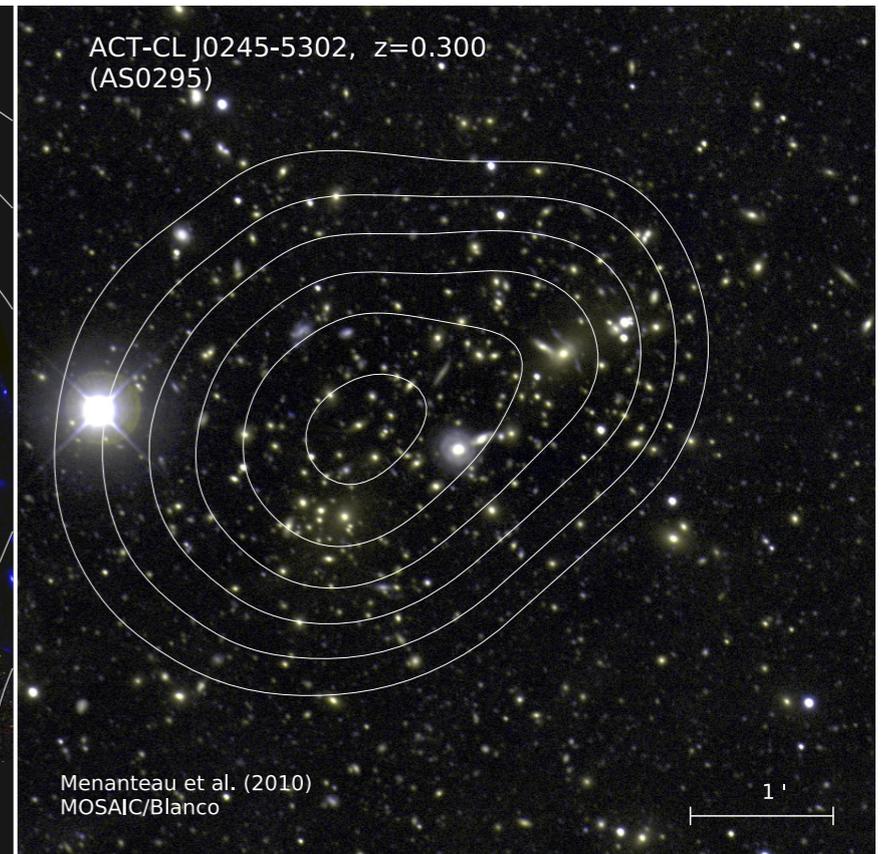
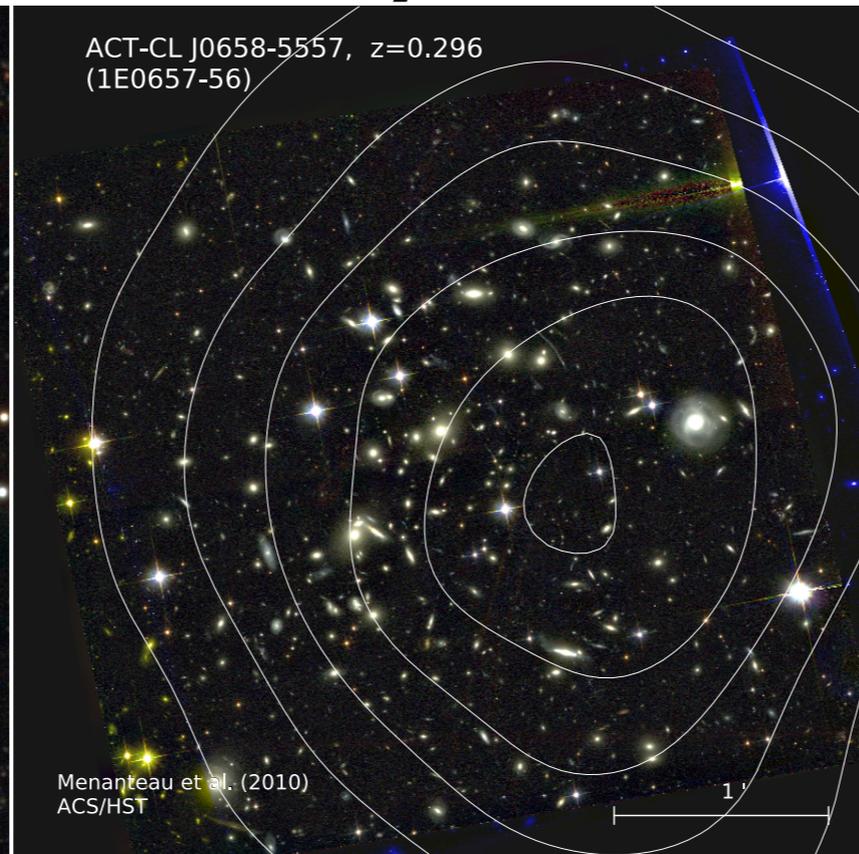
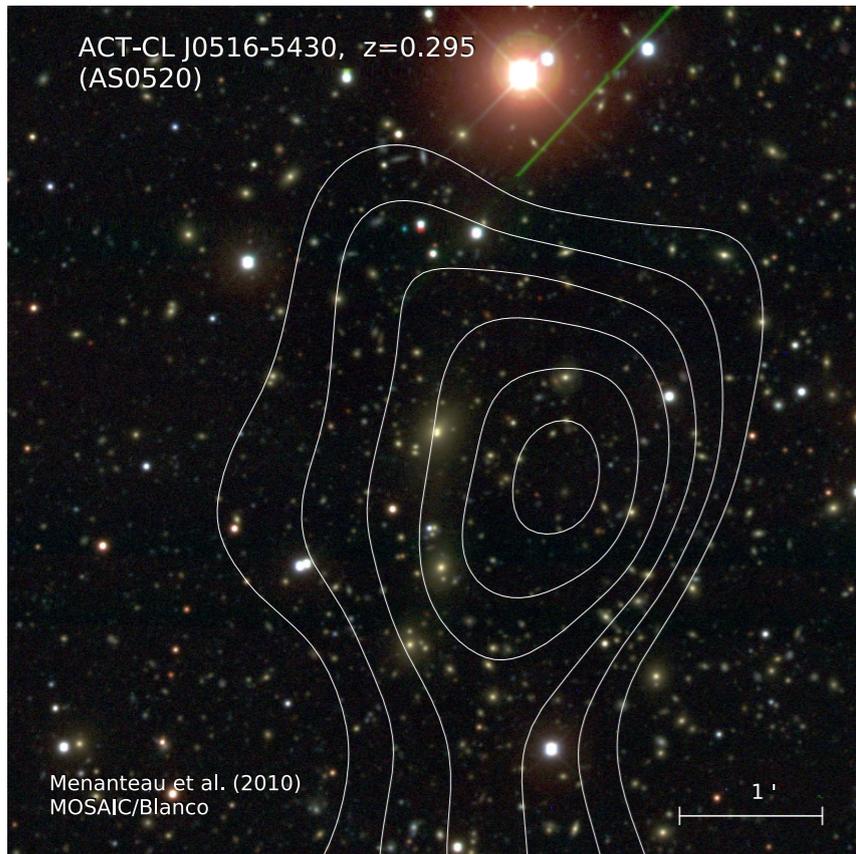
ACT-CL J0645-5413,  $z=0.167$   
(A3404)



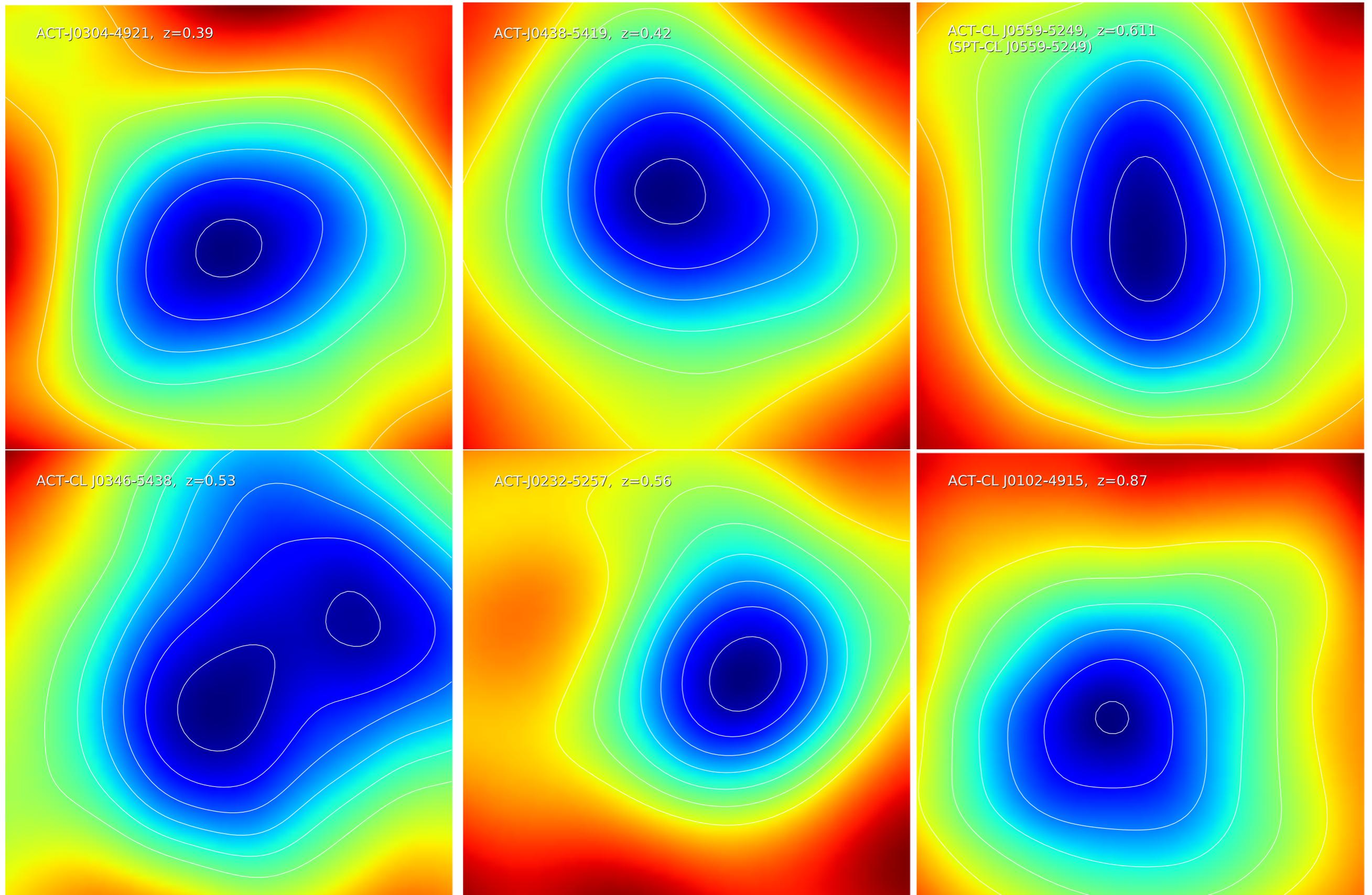
ACT-CL J0638-5358,  $z=0.222$   
(AS0592)



# Some Previously Known Clusters



# Some 2008 ACT SZ-discovered Clusters



# Some 2008 ACT SZ-discovered Clusters

