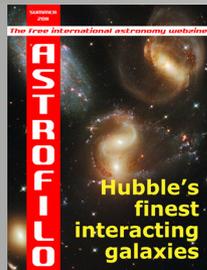


SUMMER
2011

The free international astronomy webzine

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**Hubble's
finest
interacting
galaxies**



ON THE COVER

One of the most spectacular groups of interacting galaxies, Stephan's Quintet. The interaction and merging is a fundamental process in the evolution of galaxies.

[NASA, ESA, and the Hubble SM4 ERO Team]

SPECIAL ISSUE

Hubble's finest interacting galaxies

Foreword

The galaxies are arguably the most fascinating of the celestial objects. The great distances at which they can be observed allows researchers to see back in time, almost to the moment of the birth of the Universe.

Among all the galaxies, those that best reveal the complex dynamics which drive their evolution are, without doubt, the interacting galaxies. These systems, made up of two or more galaxies that are either directly colliding or passing close enough to each other to feel the mutual tidal effects of the other, often see enhanced star formation rates as a result of the encounter. It is just these interactions that give rise to the spectacular, disturbed morphologies, and also make this class of galaxies the most visually appealing.

In this special issue of *Astrofilo* we have collected some of the most dramatic images of interacting galaxies taken by the Hubble Space Telescope. In many cases the objects are hundreds of millions of light years away, not easily accessible with amateur equipment; nonetheless, we provide brief captions with the name (often simply catalogue designations), the constellation and mean celestial coordinates of the objects for those interested in attempting to image them with their own telescope.

The almost perfect match of the backgrounds in the various images can be misleading, making distinct systems seem close in the sky. In truth, the systems are not close in the sky (or time), and the captions should make the division clear where different systems are presented on the same page.

Michele Ferrara

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2 Hubble's finest interacting galaxies

Name(s) Whirlpool Galaxy, M51, Arp85, NGC 5194-5, UGC 8493, VV 403
Constellation Canes Venatici
Coordinates 13°29'53" +47°11'43"
Credit NASA, ESA, S. Beckwith (STScI), and The Hubble Heritage Team (STScI/AURA)

Apart from a small number of the brightest objects which have popular nicknames (such as "The Antennae" or "Whirlpool Galaxy") interacting galaxies are named according to their sequential appearance in one or more catalogues. For example, the merger Arp 157 is object number 157 in Halton Arp's "Atlas of Peculiar Galaxies", published in 1966. The same object is also called NGC 520, as it appears as the 520th object in the New General Catalogue.

In fact, astronomical objects in general, especially the brighter ones, often appear in many different catalogues, and as a consequence can have many different names. It is also common that a single interacting pair has a single designation in a catalogue of interacting galaxies, with each galaxy having a unique name in another catalogue; for example, Arp 299 is made up of NGC 3690 and IC 694.

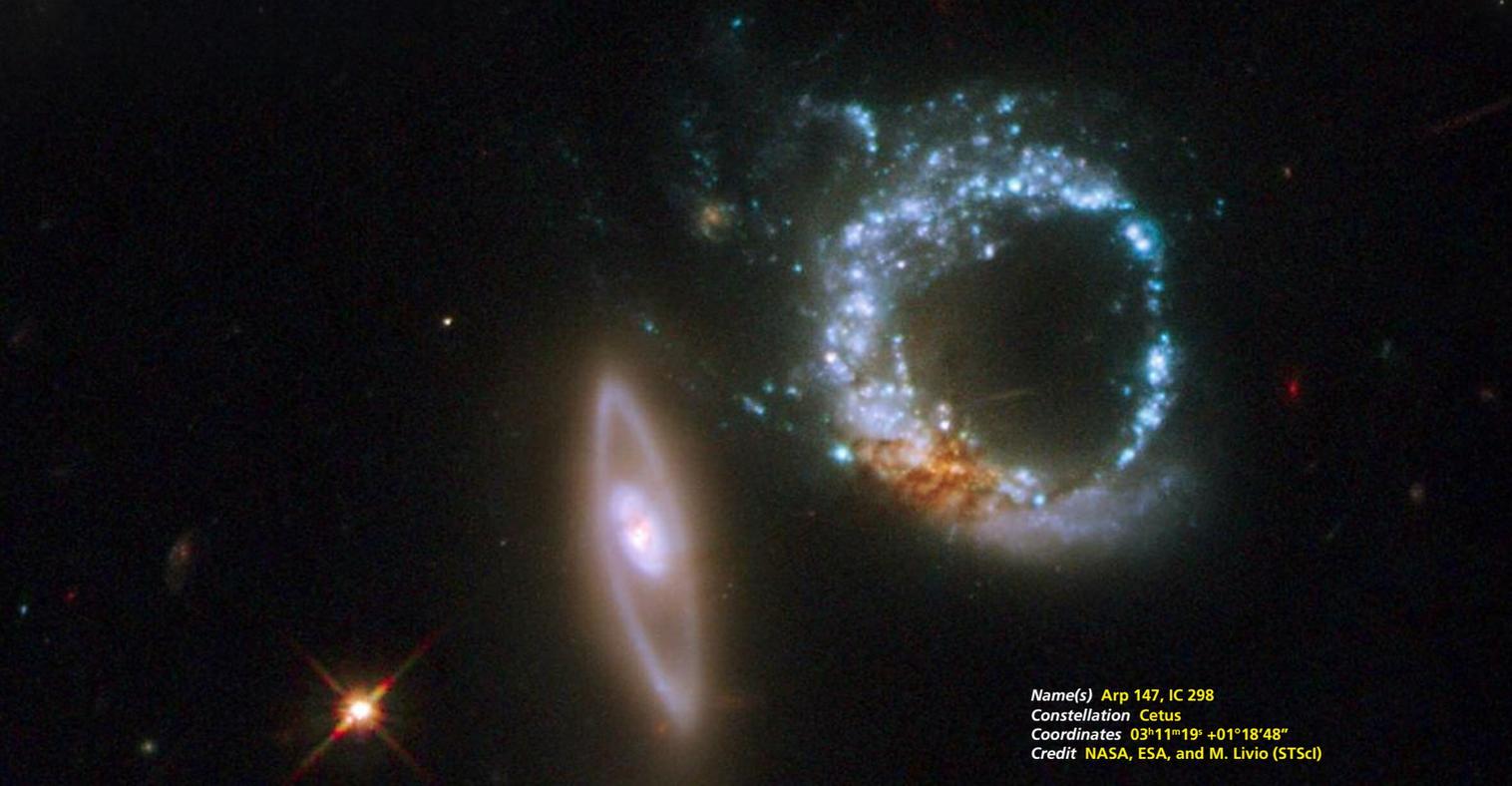
For specifically interacting galaxies one of the most important catalogues was the "The Catalogue of Interacting Galaxies", by Vorontsov-Velyaminov, and consequently many systems have a name which starts with "VV". For galaxies in small groups, often interacting amongst themselves, an important catalogue is the "Hickson Compact Group" catalogue; "Stephan's Quintet", for example, is HCG 92.

Marcel Clemens



Name(s) NGC 5257-8, UGC 8641
Constellation Virgo
Coordinates 13^h39^m52^s +00°50'22"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-
ESA/Hubble Collaboration, and A. Evans (University of
Virginia, Charlottesville/NRAO/Stony Brook University)

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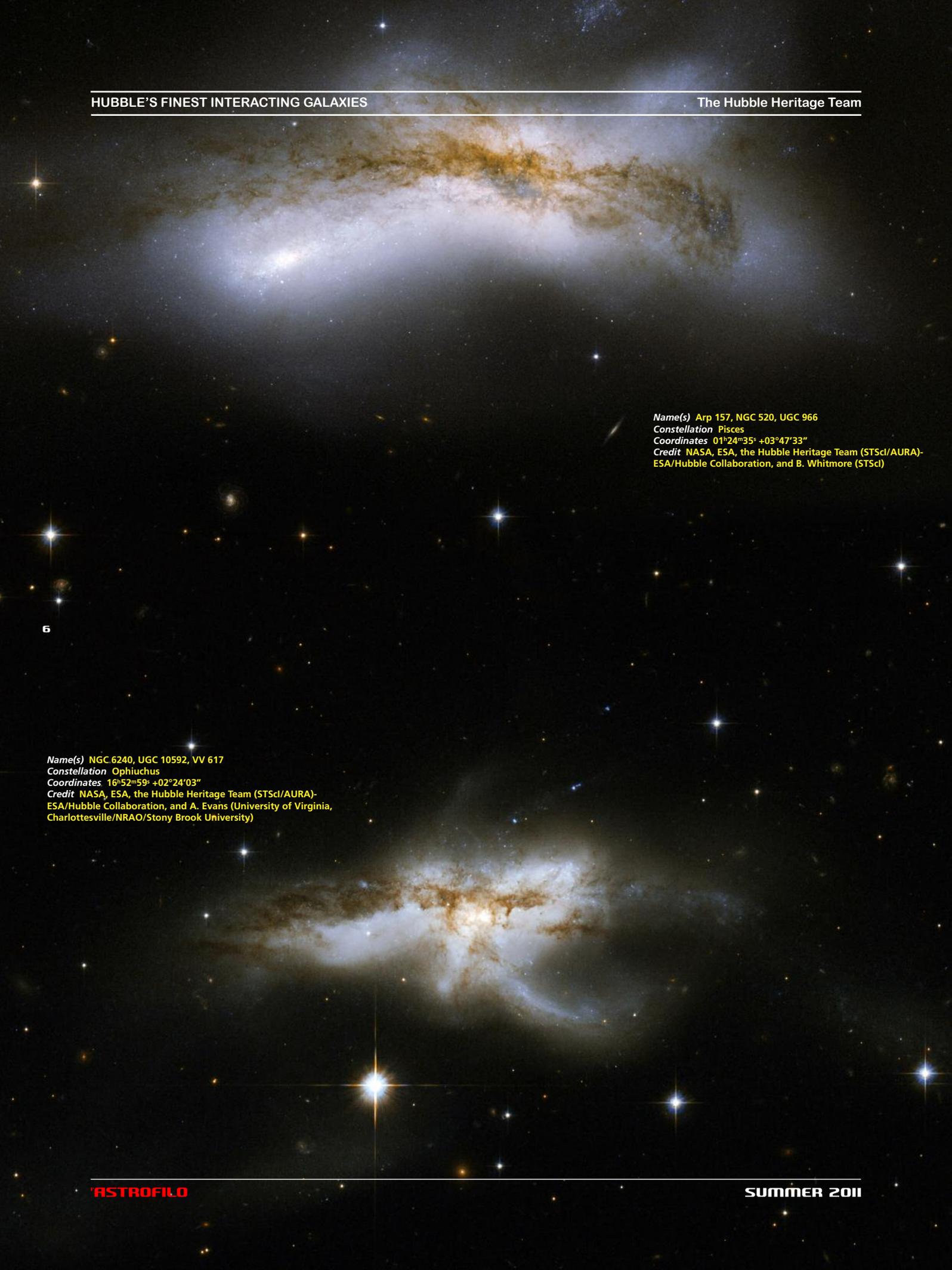


Name(s) Arp 147, IC 298
Constellation Cetus
Coordinates 03^h11^m19^s +01°18'48"
Credit NASA, ESA, and M. Livio (STScI)

Name(s) IRAS 18090+0130
Constellation Ophiuchus
Coordinates 10^h59^m18^s +01°31'43"
Credit NASA, ESA, the Hubble Heritage Team
(STScI/AURA)-ESA/Hubble Collaboration, and A. Evans
(University of Virginia, Charlottesville/NRAO/Stony
Brook University)

Name(s) NGC 5331
Constellation Virgo
Coordinates 13^h52^m24^s +02°06'00"
Credit NASA, ESA, the Hubble Heritage Team
(STScI/AURA)-ESA/Hubble Collaboration, and A.
Evans (University of Virginia, Charlottesville/
NRAO/Stony Brook University)

S



Name(s) Arp 157, NGC 520, UGC 966
Constellation Pisces
Coordinates 01^h24^m35^s +03°47'33"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-
ESA/Hubble Collaboration, and B. Whitmore (STScI)

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Name(s) NGC 6240, UGC 10592, VV 617
Constellation Ophiuchus
Coordinates 16^h52^m59^s +02°24'03"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-
ESA/Hubble Collaboration, and A. Evans (University of Virginia,
Charlottesville/NRAO/Stony Brook University)

A large, irregularly shaped galaxy with a bright, yellowish-white core and a diffuse, blue-tinted outer structure. It appears to be in the process of interacting or merging with another galaxy, though the second galaxy is mostly obscured or very faint.

Name(s) VV 283
Constellation Virgo
Coordinates $13^{\text{h}}01^{\text{m}}50^{\text{s}} +04^{\circ}20'02''$
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)

A complex system of galaxies. On the left is a large, well-defined spiral galaxy with a bright yellowish-white core and blue-tinted arms. To its right is a smaller, more irregular galaxy system with a bright core and a blue-tinted structure. The background is filled with numerous stars and other distant galaxies.

Name(s) Arp 274, NGC 5679
Constellation Virgo
Coordinates $14^{\text{h}}35^{\text{m}}06^{\text{s}} +05^{\circ}20'54''$
Credit NASA, ESA, M. Livio and the Hubble Heritage Team (STScI/AURA)
Note Perhaps, only the left and right galaxies are interacting



8

Name(s) NGC 3256
Constellation Virgo
Coordinates 12^h23^m42^s +07°03'00"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-
ESA/Hubble Collaboration, and A. Evans (University of Virginia,
Charlottesville/NRAO/Stony Brook University)

Name(s) Arp 186, NGC 1614
Constellation Eridanus
Coordinates 04^h34^m00^s +08°34'43"
Credit NASA, ESA, the Hubble Heritage Team
(STScI/AURA)-ESA/Hubble Collaboration, and
A. Evans (University of Virginia, Charlotte-
sville/NRAO/Stony Brook University)

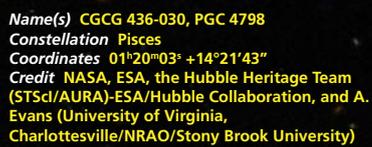
9

Name(s) Arp 182, NGC 7674
Constellation Pegasus
Coordinates 23^h27^m54^s +08°47'00"
Credit NASA, ESA, the Hubble Heritage Team
(STScI/AURA)-ESA/Hubble Collaboration, and A. Evans
(University of Virginia, Charlottesville/NRAO/Stony
Brook University)

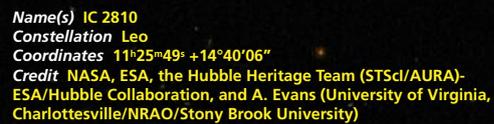
Name(s) Arp 298, NGC 7469
Constellation Pegasus
Coordinates 23^h03^m18^s +08°52'00"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-
ESA/Hubble Collaboration, and A. Evans (University of Virginia,
Charlottesville/NRAO/Stony Brook University)

10

Name(s) 2MASX J09133888-1019196
Constellation Hydra
Coordinates 09^h10^m39^s +10°19'20"
Credit NASA, ESA, the Hubble Heritage Team
(STScI/AURA)-ESA/Hubble Collaboration, and
A. Evans (University of Virginia, Charlotte-
sville/NRAO/Stony Brook University)



Name(s) CGCG 436-030, PGC 4798
Constellation Pisces
Coordinates 01^h20^m03^s +14°21'43"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)



Name(s) IC 2810
Constellation Leo
Coordinates 11^h25^m49^s +14°40'06"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)

Name(s) II Zw 96, PGC 65779
Constellation Delphinus
Coordinates 20^h57^m24^s +17°07'39"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-
ESA/Hubble Collaboration, and A. Evans (University of Virginia,
Charlottesville/NRAO/Stony Brook University)

12

Name(s) Arp 272, NGC 6050
Constellation Hercules
Coordinates 16^h05^m24^s +17°45'30"
Credit NASA, ESA, the Hubble Heritage Team
(STScI/AURA)-ESA/Hubble Collaboration, and
K. Noll (STScI)

Name(s) NGC 7771, UGC 12812
Constellation Pegasus
Coordinates 23^h51^m24^s +20°34'56"
Credit NASA, ESA, the Hubble Heritage Team
(STScI/AURA)-ESA/Hubble Collaboration, and A. Evans
(University of Virginia, Charlottesville/NRAO/Stony
Brook University)



Name(s) Arp 87, NGC 3808
Constellation Leo
Coordinates 11^h40^m44^s +22°25'42"
Credit NASA, ESA, and the Hubble Heritage Team (STScI/AURA)

14



Name(s) NGC 695
Constellation Aries
Coordinates 01^h51^m12^s +22°35'00"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)

Name(s) Arp 220, IC 4553, UGC 9913
Constellation Serpens
Coordinates 15^h34^m57^s +23°30'11"
Credit NASA, ESA, the Hubble Heritage Team
(STScI/AURA)-ESA/Hubble Collaboration,
and A. Evans (University of Virginia,
Charlottesville/NRAO/ Stony Brook University)

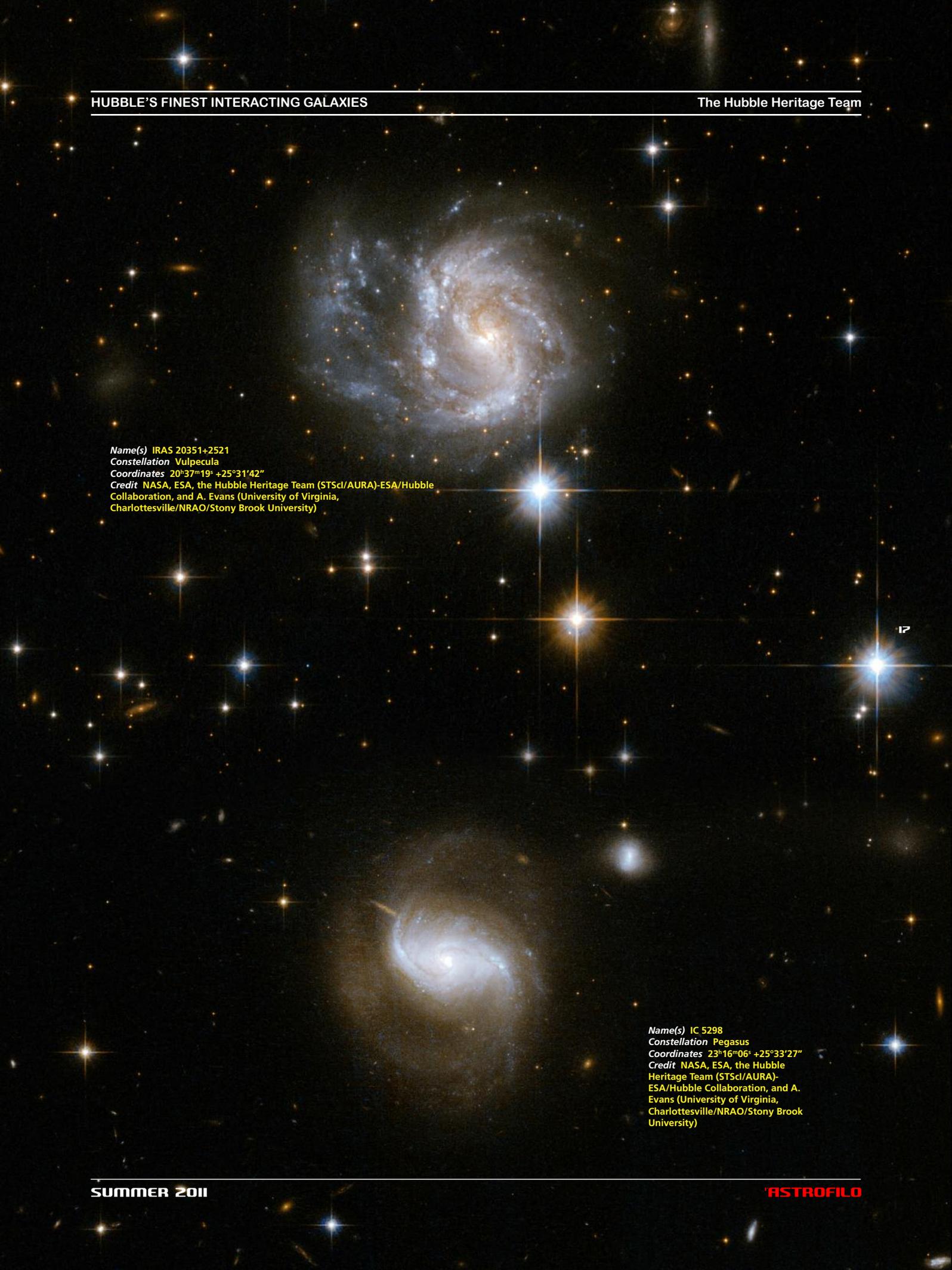
IS

Name(s) Seyfert's Sextet, HCG 79, NGC 6027, UGC 10116, VV 115
Constellation Serpens
Coordinates 15^h59^m12^s +20°45'31"
Credit NASA, J. English (U. Manitoba), S. Hunsberger, S. Zonak, J.
Charlton, S. Gallagher (PSU), and L. Frattare (STScI)
Note Only four members are interacting galaxies

Name(s) IRAS F10565+2448
Constellation Leo
Coordinates 10^h59^m18^s +24°32'34"
Credit NASA, ESA, the Hubble Heritage Team
(STScI/AURA)-ESA/Hubble Collaboration, and A.
Evans (University of Virginia, Charlottesville/
NRAO/Stony Brook University)

16

Name(s) Arp 302, UGC 9618
Constellation Bootes
Coordinates 14^h56^m54^s +24°37'00"
Credit NASA, ESA, the Hubble Heritage Team
(STScI/AURA)-ESA/Hubble Collaboration, and
A. Evans (University of Virginia, Charlotte-
sville/NRAO/Stony Brook University)



Name(s) IRAS 20351+2521
Constellation Vulpecula
Coordinates 20^h37^m19^s +25°31'42"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)

Name(s) IC 5298
Constellation Pegasus
Coordinates 23^h16^m06^s +25°33'27"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)

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Name(s) Stephan's Quintet, Arp 319, VV 288
Constellation Pegasus
Coordinates 22^h35^m57^s +33°57'36"
Credit NASA, ESA, and the Hubble SM4 ERO Team



Name(s) The Mice, Arp 242, NGC 4676, UGC 7938-9
Constellation Coma Berenices
Coordinates 12^h46^m11^s +30°43'38"
Credit NASA, H. Ford (JHU), G. Illingworth (UCSC/LO), M. Clampin (STScI), G. Hartig (STScI), the ACS Science Team, and ESA

19

Name(s) Arp 193, IC 883
Constellation Canes Venatici
Coordinates 13^h20^m36^s +34°08'21"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)

20

Name(s) NGC 5754
Constellation Bootes
Coordinates $14^{\text{h}}45^{\text{m}}24^{\text{s}} +38^{\circ}47'00''$
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-
ESA/Hubble Collaboration, and W. Keel (University of Alabama,
Tuscaloosa)

Name(s) Arp 194, UGC 6945
Constellation Cepheus
Coordinates $11^{\text{h}}57^{\text{m}}53^{\text{s}} +36^{\circ}23'18''$
Credit NASA, ESA, and the Hubble Heritage
Team (STScI/AURA)



21

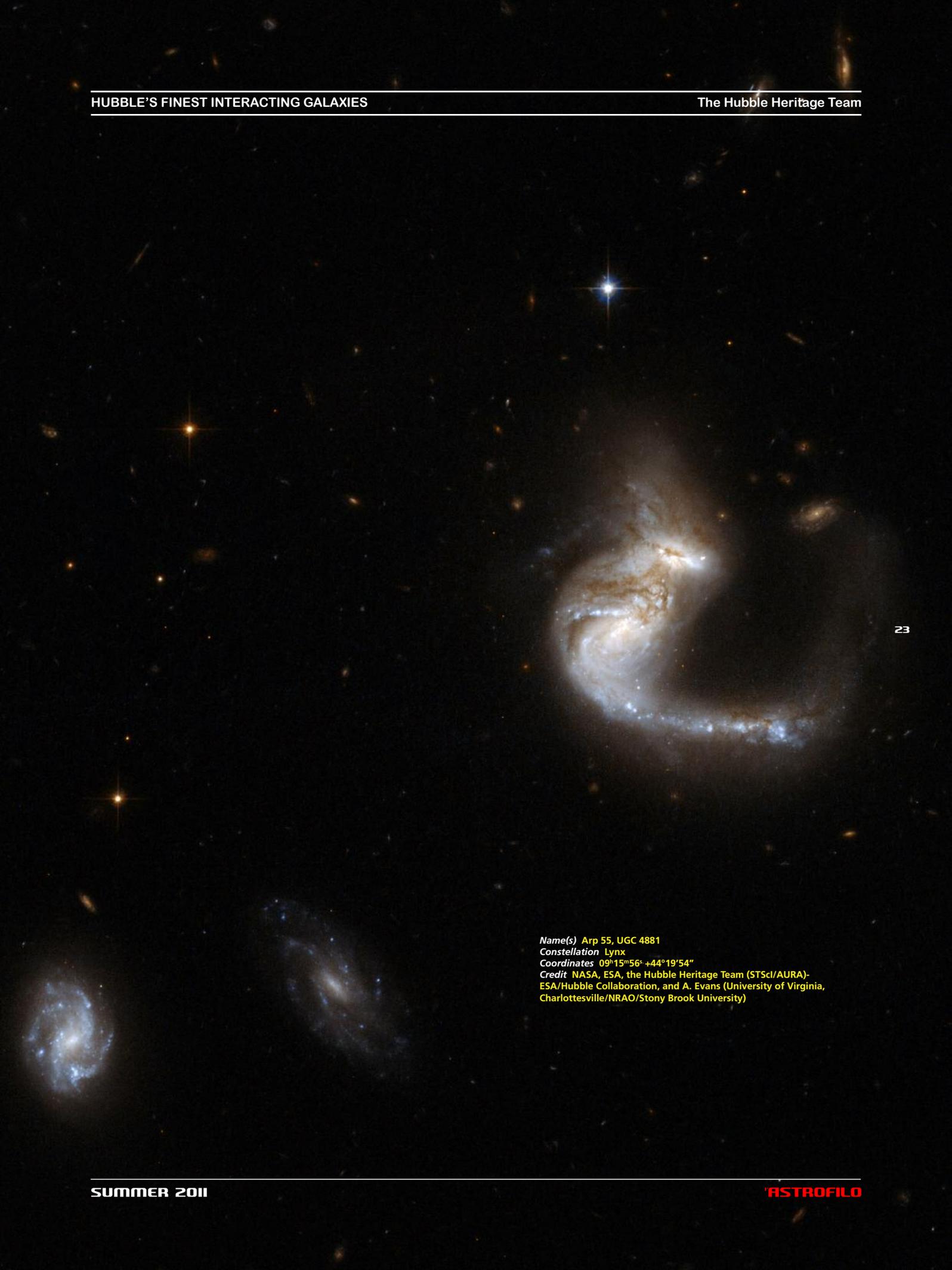
Name(s) Arp 273, UGC 1810-3
Constellation Andromeda
Coordinates 02^h21^m29^s +39°22'32"
Credit NASA, ESA, and the Hubble Heritage Team (STScI/AURA)

Name(s) **NGC 1275**
Constellation **Perseus**
Coordinates **03^h19^m48^s +41°30'42"**
Credit **NASA, ESA, and the Hubble Heritage Team (STScI/AURA)**

22

Name(s) **Mayall's Object, Arp 148, VV 032**
Constellation **Ursa Major**
Coordinates **11^h03^m54^s +40°51'00"**
Credit **NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)**

Name(s) **VV 705, Mrk 848**
Constellation **Bootes**
Coordinates **15^h18^m06^s +42°44'34"**
Credit **NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)**



23

Name(s) Arp 55, UGC 4881
Constellation Lynx
Coordinates 09^h15^m56^s +44°19'54"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-
ESA/Hubble Collaboration, and A. Evans (University of Virginia,
Charlottesville/NRAO/Stony Brook University)



Name(s) NGC 5256, UGC 8632, Mrk 266
Constellation Ursa Major
Coordinates 13^h38^m17^s +48°16'39"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)



Name(s) MCG11-002, PGC 17588
Constellation Auriga
Coordinates 05^h40^m44^s +49°41'42"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)

24



Name(s) NGC 6090
Constellation Draco
Coordinates 16^h11^m42^s +52°27'00"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University), and G. Ostlin (Stockholm University)



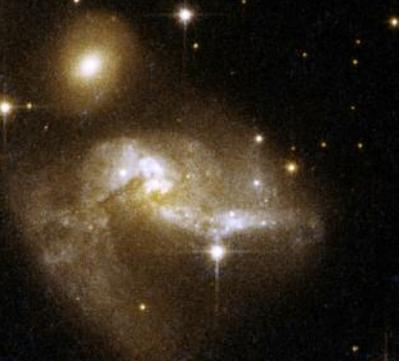
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Name(s) The Tadpole, Arp 188, UGC 10214
Constellation Draco
Coordinates 16^h06^m04^s +55°25'32"
Credit NASA, H. Ford (JHU), G. Illingworth (UCSC/LO), M. Clampin (STScI), G. Hartig (STScI), the ACS Science Team, and ESA

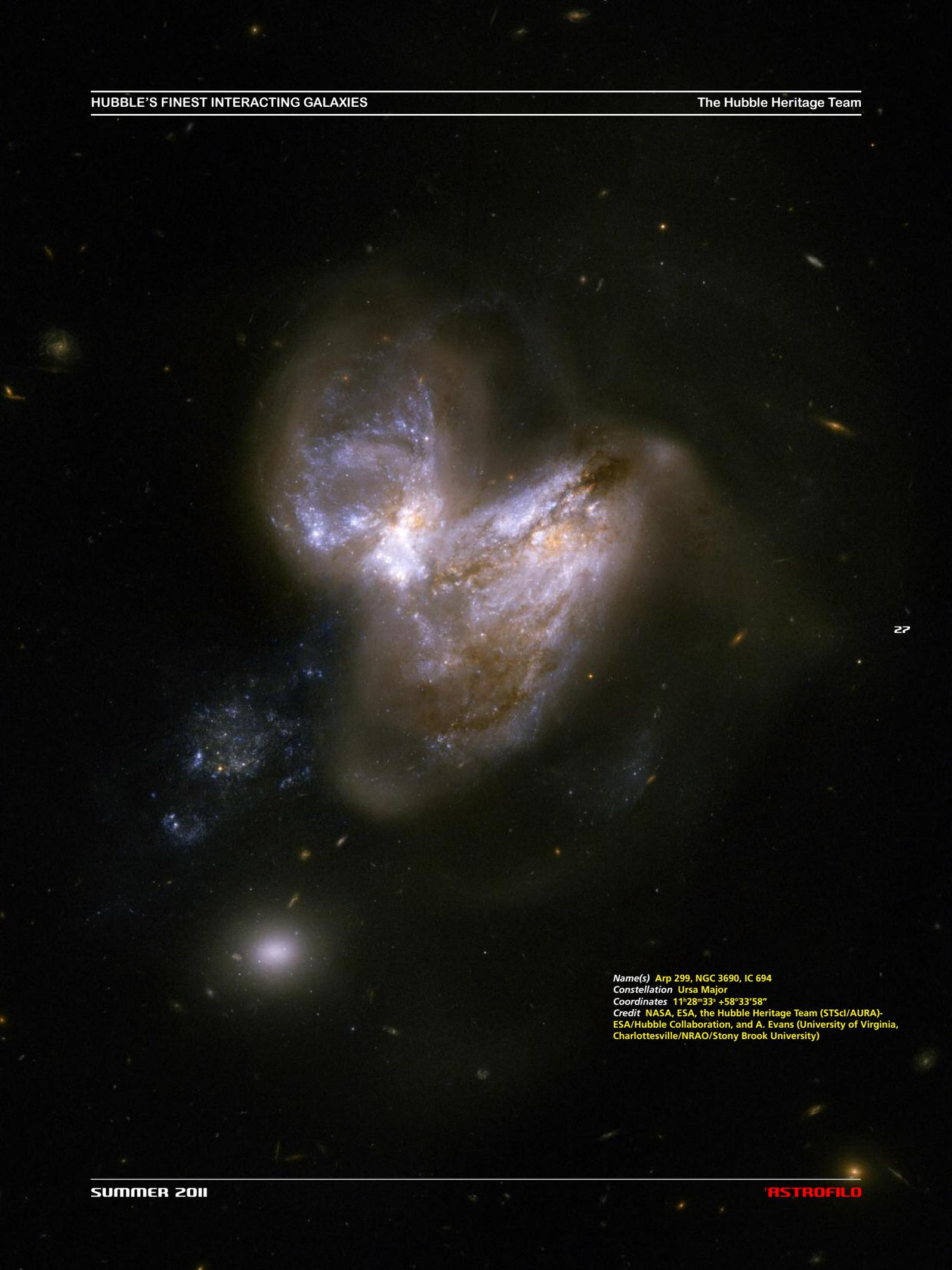


Name(s) UGC 8058, Mrk 231
Constellation Ursa Major
Coordinates 12^h56^m14^s +56°52'27"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)

26



Name(s) IRAS 21101+5810
Constellation Cepheus
Coordinates 21^h11^m29^s +58°23'04"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)



27

Name(s) Arp 299, NGC 3690, IC 694
Constellation Ursa Major
Coordinates 11^h28^m33^s +58°33'58"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-
ESA/Hubble Collaboration, and A. Evans (University of Virginia,
Charlottesville/NRAO/Stony Brook University)

Name(s) NGC 6670
Constellation Draco
Coordinates 18^h33^m30^s +59°53'00"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-
ESA/Hubble Collaboration, and A. Evans (University of Virginia,
Charlottesville/NRAO/Stony Brook University)

28

Name(s) UGC 6471-2
Constellation Ursa Major
Coordinates 11^h25^m42^s +58°50'00"
Credit NASA, Rogier Windhorst (Arizona
State University, Tempe, AZ), and the
Hubble mid-UV team





Name(s) Arp 81, NGC 6621-2, VV 247
Constellation Draco
Coordinates 18^h12^m55^s +68°21'49"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble
Collaboration, and W. Keel (University of Alabama, Tuscaloosa)

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Name(s) UGC 5101
Constellation Ursa Major
Coordinates 09^h35^m49^s +61°21'22"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-
ESA/Hubble Collaboration, and A. Evans (University of Virginia,
Charlottesville/NRAO/Stony Brook University)

Name(s) NGC 4319 - Mrk 205, UGC 7429
Constellation Draco
Coordinates 12^h21^m43^s +75°19'00"
Credit NASA and The Hubble Heritage Team (STScI/AURA)

30

Name(s) Arp 238, UGC 8335
Constellation Ursa Major
Coordinates 13^h15^m34^s +62°07'34"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-
ESA/Hubble Collaboration, and A. Evans (University of Virginia,
Charlottesville/NRAO/Stony Brook University)



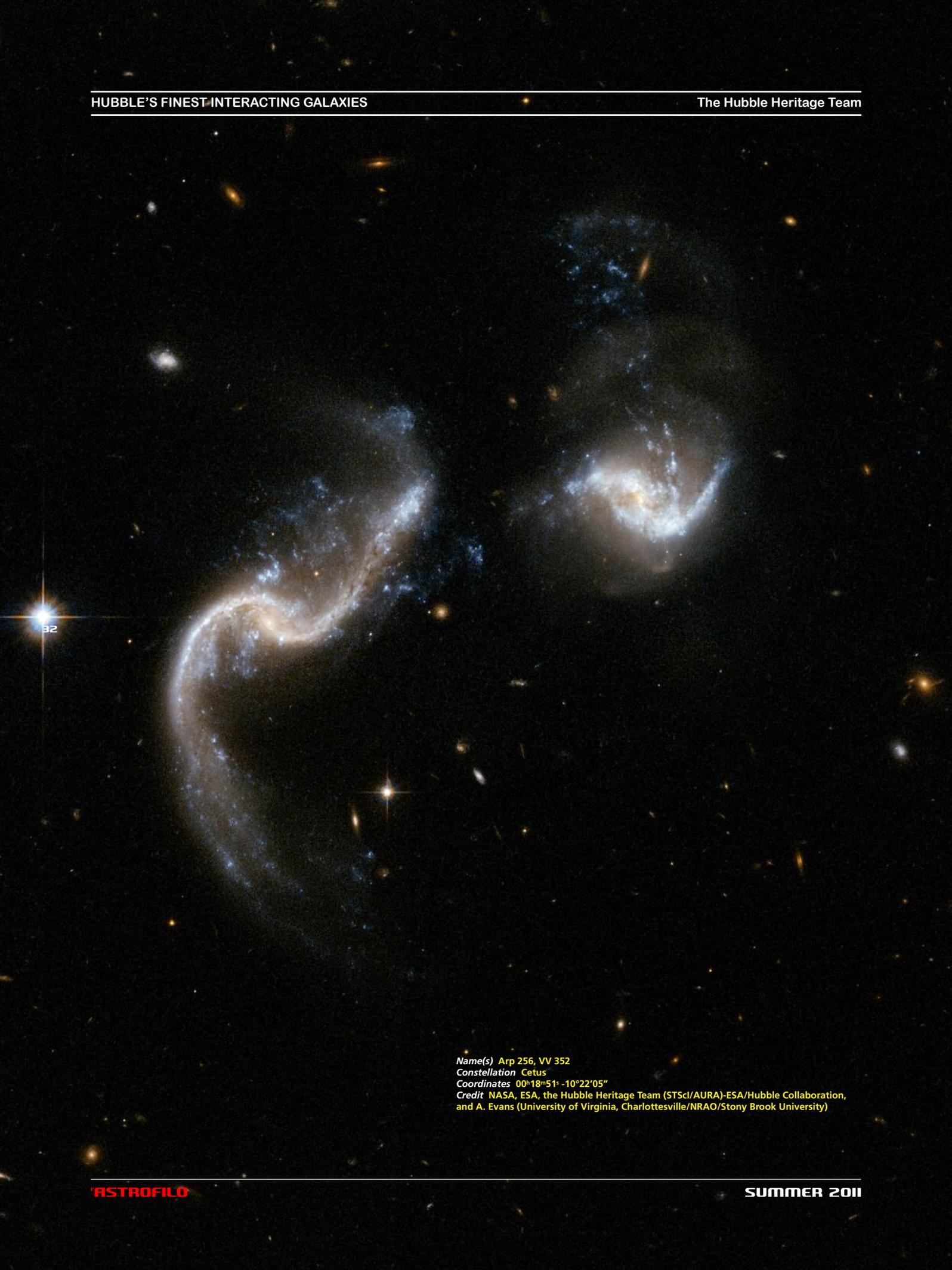
Name(s) Mrk 273
Constellation Draco
Coordinates 13^h53^m02^s +69°18'29"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)



Name(s) MCG02-001, PGC 3182
Constellation Cassiopeia
Coordinates 00^h54^m04^s +73°05'23"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)



Name(s) NGC 6786
Constellation Draco
Coordinates 19^h10^m54^s +73°24'00"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)



Name(s) Arp 256, VV 352
Constellation Cetus
Coordinates 00^h18^m51^s -10°22'05"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)

Name(s) Hickson Compact Group 31
Constellation Eridanus
Coordinates 05^h01^m37^s -04°15'24"
Credit NASA, ESA, S. Gallagher (The University of Western Ontario),
and J. English (University of Manitoba), and the Hubble Heritage Team
(STScI/AURA)

33

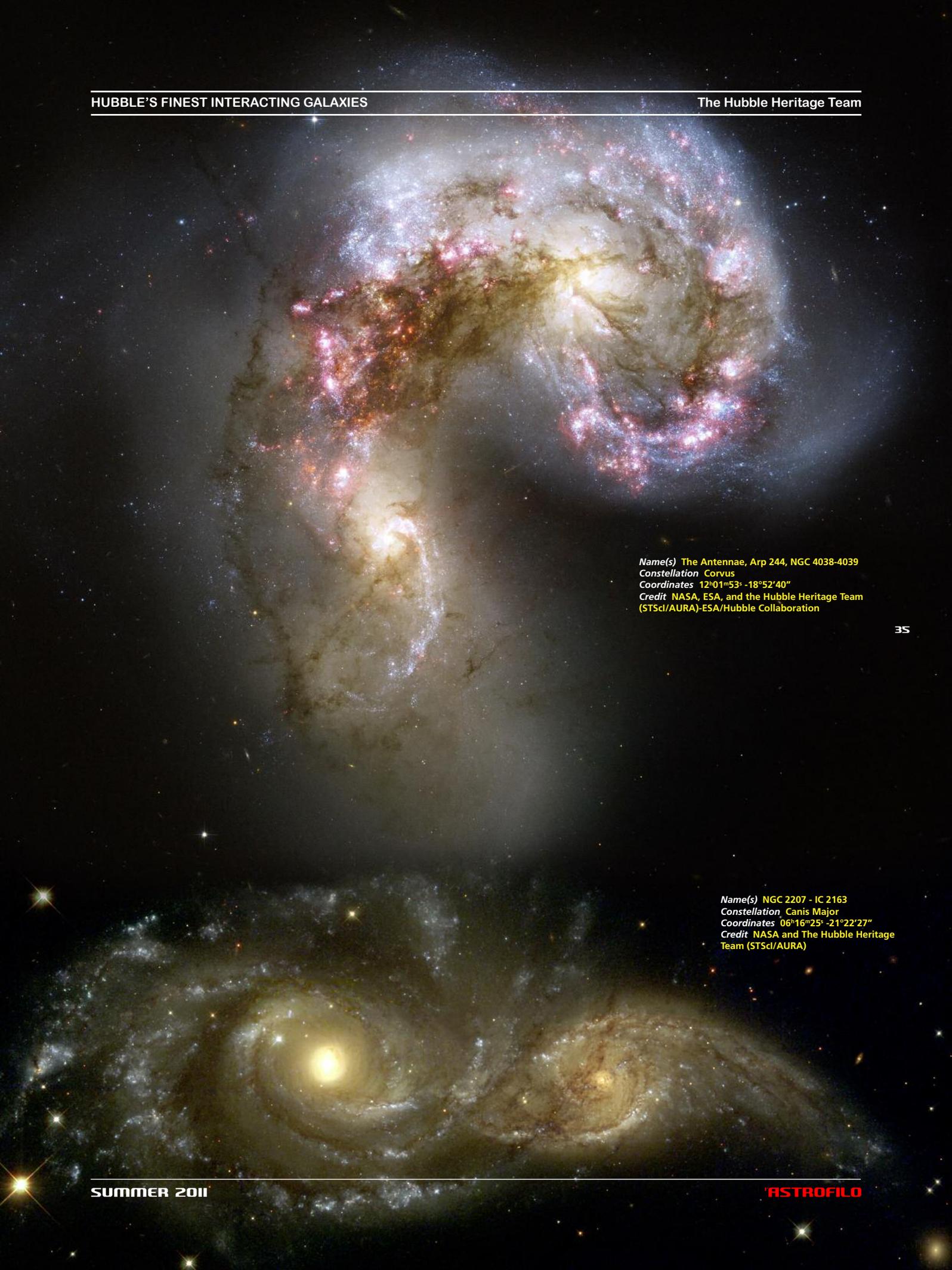
Name(s) NGC 17
Constellation Cetus
Coordinates 00^h11^m06^s -12°06'26"
Credit NASA, ESA, the Hubble
Heritage Team (STScI/AURA)-
ESA/Hubble Collaboration,
and A. Evans (University
of Virginia, Charlot-
tesville/NRAO/Stony
Brook University)

Name(s) NGC 1410-1409, UGC 2821
Constellation Taurus
Coordinates 03^h41^m11^s -01°17'56"
Credit NASA, William C. Keel (University
of Alabama, Tuscaloosa)

Name(s) ESO 550-2
Constellation Eridanus
Coordinates 04^h21^m20^s -18°48'47"
Credit NASA, ESA, the Hubble Heritage Team
(STScI/AURA)-ESA/Hubble Collaboration,
and A. Evans (University of Virginia, Charlotte-
sville/NRAO/ Stony Brook University)

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Name(s) Arp 236, IC 1623
Constellation Cetus
Coordinates 01^h07^m46^s -17°30'26"
Credit NASA, ESA, the Hubble Heritage Team
(STScI/AURA)-ESA/Hubble Collaboration, and
A. Evans (University of Virginia, Charlotte-
sville/NRAO/Stony Brook University)



Name(s) The Antennae, Arp 244, NGC 4038-4039
Constellation Corvus
Coordinates 12^h01^m53^s -18°52'40"
Credit NASA, ESA, and the Hubble Heritage Team
(STScI/AURA)-ESA/Hubble Collaboration

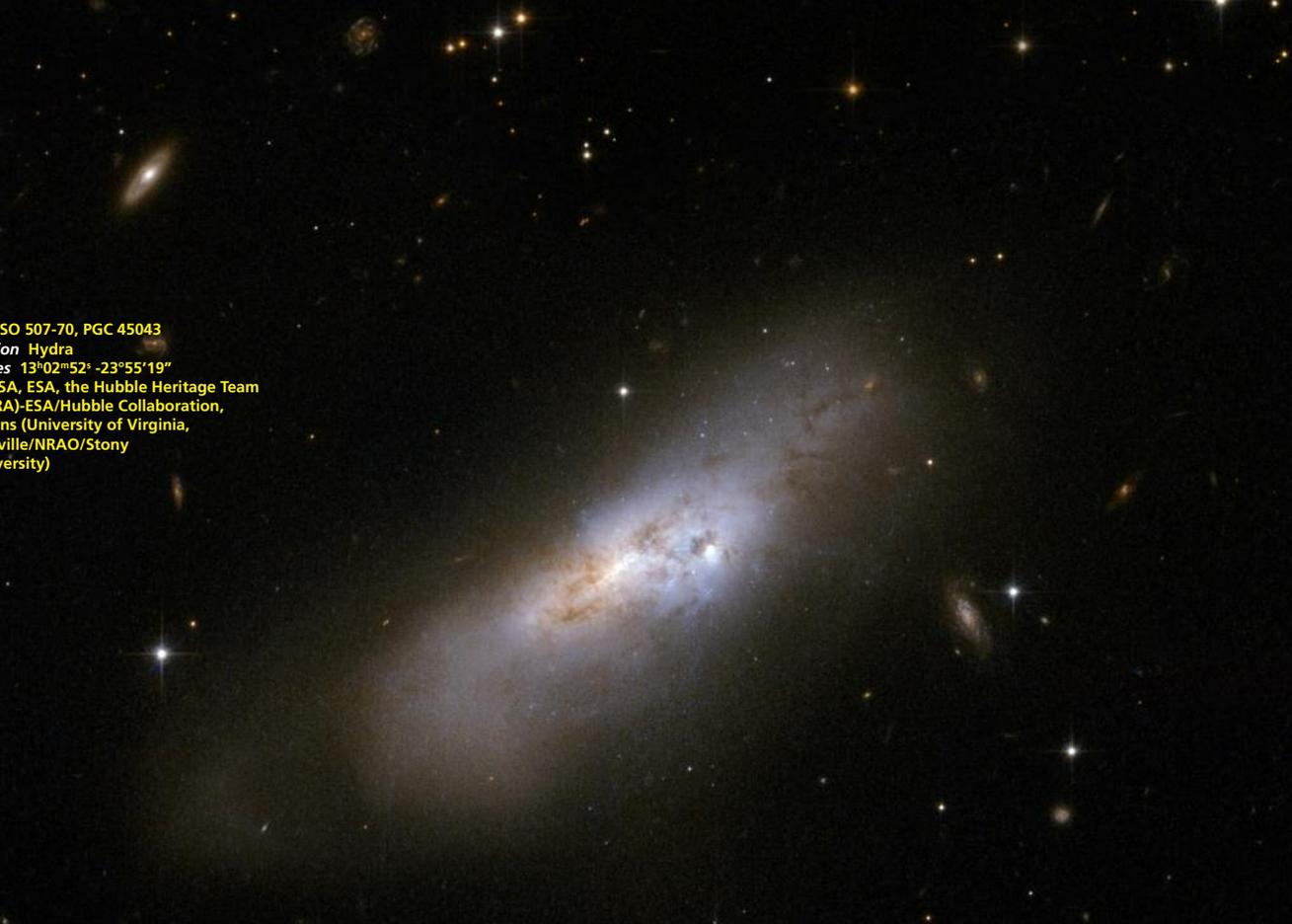
35

Name(s) NGC 2207 - IC 2163
Constellation Canis Major
Coordinates 06^h16^m25^s -21°22'27"
Credit NASA and The Hubble Heritage Team (STScI/AURA)



Name(s) ESO 593-8
Constellation Sagittarius
Coordinates 19^h11^m33^s -21°24'18"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-
ESA/Hubble Collaboration, and A. Evans (University of Virginia,
Charlottesville/NRAO/Stony Brook University)

36



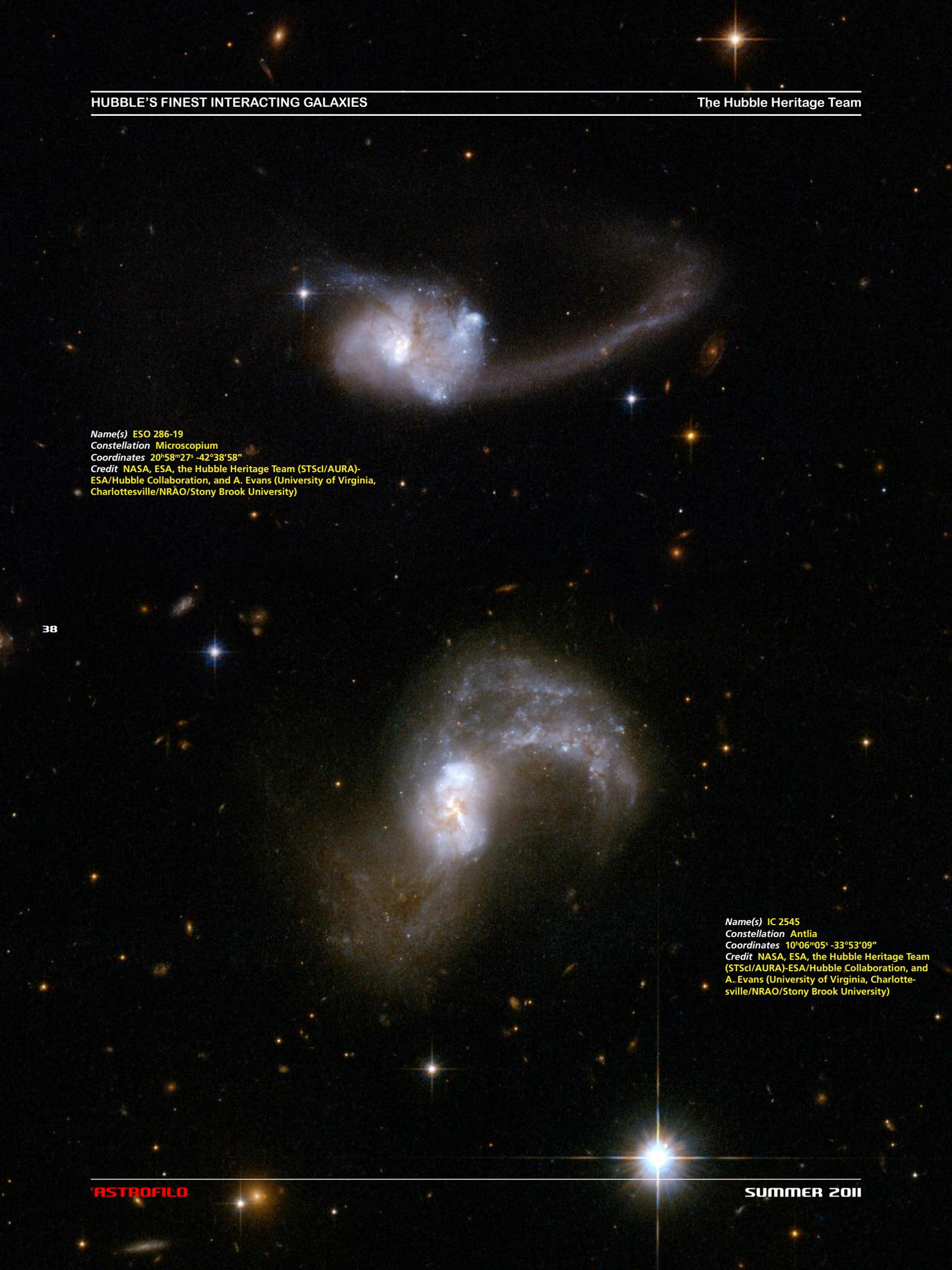
Name(s) ESO 507-70, PGC 45043
Constellation Hydra
Coordinates 13^h02^m52^s -23°55'19"
Credit NASA, ESA, the Hubble Heritage Team
(STScI/AURA)-ESA/Hubble Collaboration,
and A. Evans (University of Virginia,
Charlottesville/NRAO/Stony
Brook University)

Name(s) Hickson Compact Group 90
Constellation Pisces Austrinus
Coordinates 22^h02^m06^s -31°59'00"
Credit NASA, ESA, and R. Sharples
(University of Durham)

37

Name(s) Cartwheel Galaxy, ESO 350-40, PGC 2248
Constellation Sculptor
Coordinates 00^h37^m41^s -33°42'59"
Credit NASA, ESA, and K. Borne (STScI/AURA)

Name(s) AM 1316-241
Constellation Hydra
Coordinates 13^h19^m33^s -24°29'26"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration,
and W. Keel (University of Alabama, Tuscaloosa)



Name(s) ESO 286-19
Constellation Microscopium
Coordinates 20^h58^m27^s -42°38'58"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-
ESA/Hubble Collaboration, and A. Evans (University of Virginia,
Charlottesville/NRAO/Stony Brook University)

38

Name(s) IC 2545
Constellation Antlia
Coordinates 10^h06^m05^s -33°53'09"
Credit NASA, ESA, the Hubble Heritage Team
(STScI/AURA)-ESA/Hubble Collaboration, and
A. Evans (University of Virginia, Charlotte-
ville/NRAO/Stony Brook University)

Name(s) ESO 239-2
Constellation Grus
Coordinates 22^h49^m40^s -48°50'56"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)

39

Name(s) ESO 255-7
Constellation Puppis
Coordinates 06^h27^m23^s -47°10'46"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)

Name(s) AM 0702-601, ESO 119-27
Constellation Carina
Coordinates 07^h03^m27^s -60°16'00"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration,
and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)

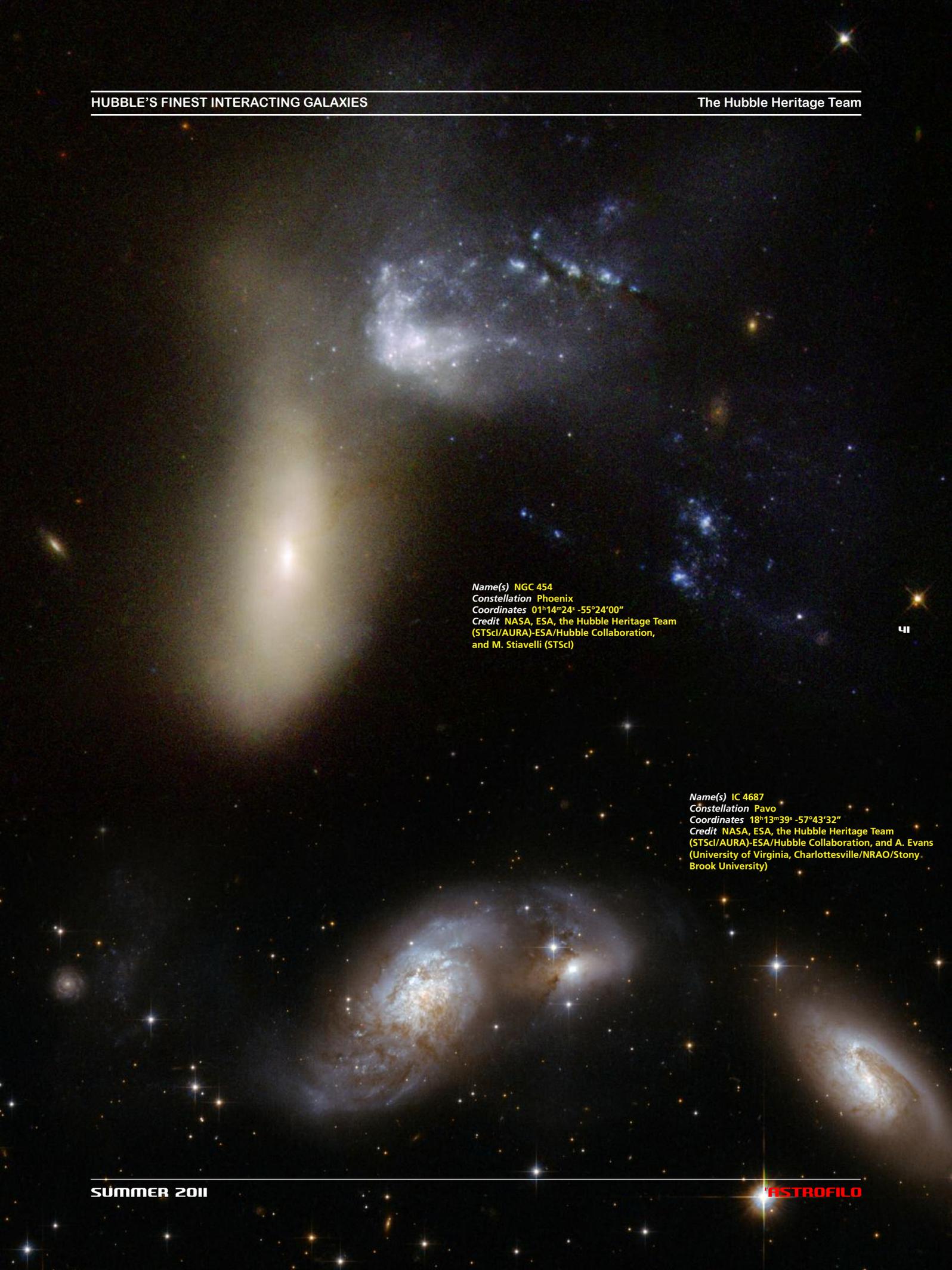


40

Name(s) ESO 148-2
Constellation Tucana
Coordinates 23^h15^m47^s -59°03'13"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-
ESA/Hubble Collaboration, and
A. Evans (University of Virginia,
Charlottesville/NRAO/Stony
Brook University)

Name(s) AM 0500-620
Constellation Dorado
Coordinates 05^h00^m34^s -62°04'22"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-
ESA/Hubble Collaboration,
and W. Keel (University of
Alabama, Tuscaloosa)





Name(s) NGC 454
Constellation Phoenix
Coordinates 01^h14^m24^s -55°24'00"
Credit NASA, ESA, the Hubble Heritage Team
(STScI/AURA)-ESA/Hubble Collaboration,
and M. Stiavelli (STScI)

41

Name(s) IC 4687
Constellation Pavo
Coordinates 18^h13^m39^s -57°43'32"
Credit NASA, ESA, the Hubble Heritage Team
(STScI/AURA)-ESA/Hubble Collaboration, and A. Evans
(University of Virginia, Charlottesville/NRAO/Stony
Brook University)

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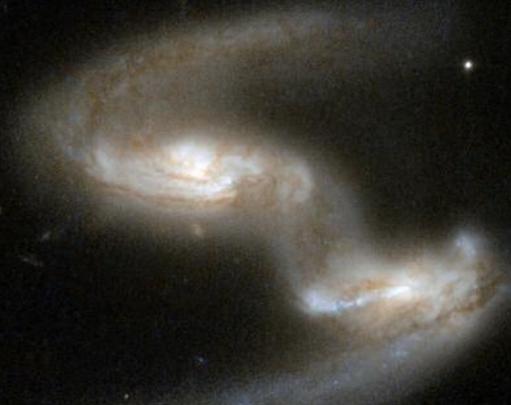
Name(s) ESO 99-4, PGC 90206
Constellation Triangulum Australe
Coordinates 15^h24^m59^s -63°07'33"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-
ESA/Hubble Collaboration, and A. Evans (University of Virginia,
Charlottesville/NRAO/Stony Brook University)

Name(s) ESO 69-6
Constellation Triangulum Australe
Coordinates 16^h33^m02^s -68°20'42"
Credit NASA, ESA, the Hubble Heritage Team
(STScI/AURA)-ESA/Hubble Collaboration, and A. Evarfs
(University of Virginia, Charlottesville/NRAO/Stony
Brook University)

43

Name(s) AM 0644-741
Constellation Volans
Coordinates 06^h43^m06^s -74°13'35"
Credit NASA, ESA, and The Hubble Heritage Team (AURA/STScI)

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Name(s) ESO 77-14
Constellation Indus
Coordinates 23^h21^m05^s -69°12'56"
Credit NASA, ESA, the Hubble Heritage Team (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)