

Inventory of all aerial photographic and digital imagery available through the GCMRC library

Photographic prints available for viewing at the GCMRC library only

(Information in red denotes data collected as part of the remote sensing initiative)

Acquisition date	Type	Product	From approximate River Mile ¹	To approximate River Mile ¹	Scale ² or resolution ³	Number of images or files	Dam release in m ³ /sec (ft ³ /sec)	Comments
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1935	Black and white	9" print	-19.3	239.8	unknown	54	unknown	6 missing
1952	Black and white	18" print	-13.5	3.5	1:7,920	6	unknown	
5/14/65	Black and white	9" print	0	255	1:12,000 ⁴	652	680-792 (24,000-28,000)	8 known missing (RM 209-214) USGS/WRD may have duplicates
06/17/73	Black and white	9" print	43-48, 51-56, 105-110, 120-123,	166-168, 209, 219-221	1:14,400 ⁴	50	76-396 (2,700-14,000)	Bureau of Reclamation may have duplicates
08/08/79	Color	9" print	-1.5	16	1:3,000 ⁴	100	623 (22,000)	
06/27/80	Color Infrared	9" print	-15.5	211	1:3,600 ⁴	400	1047 (37,000)	Spillways open
07/11/80	Color Infrared	9" print	17 [House Rock]	220	1:3,600	200	707 (25,000)	
10/20/80	Black and white	9" print	47 Little Colorado River - 0	72 12	1:4,800	100		Negatives may be with FWS in Pinetop
06/09/82	Color	9" print	34 (segments)	182	1:37,000	51		Mileage inventory in photo box
06/09/82	Black and white	9" print	36 Rapids survey	166	1:32,000 1:37,000	37		Names of rapids on photographs

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10/22/84	Black and white	9" print & film	-15.5	260	1:3,000	600	144-226 (5,100-8000)	
06/08/85	Color Infrared	film	-15.5	260	1:4,800	7 rolls (approx. 1,000)	914-1030 (32,300-36,400)	
06/13/86	Black and white	9" print	Rapids survey 8 [Badger]	Segments 277 [Lake Mead]	1:8,000 ⁴	90	849 (30,000)	Irregularly sized: includes info in margins
06/13/86	Black and white	9" print	segments; 0 [Lees Ferry]	226 [Diamond]	1:8,000 ⁴	80	849 (30,000)	Irregularly sized: includes info in margins
05/20/87	Color Infrared	9" print & film	47	73	1:9,600 ⁴	104	255 (9,000)	22
05/28/88	Color Infrared	film	-15.5	280 and Little Colorado River (0-12)	1:4,800	1,000		
10/08/89	Black and white, some color	9" print & film	-15.5	280	1:6,000	700	142 (5,000)	
06/02-06/90	Color Infrared	9" print	-15.5	280	1:4,800	760		Sent to BOR, cannot find
06/02-06/90	Black and white	9" print and film	-15.5 -4	-10.4 2	1:7,200 & 1:14,400	99	142 (5,000)	
06/02-06/90	Black and white	9" print and film (roll HI 1234)	42 60	48 72	1:7,200 & 1:14,400	105 @ 7,200	142 (5,000)	
06/30-07/01/91	Black and white	9" print and film (rolls HI 1334-35)	93 273	99 276	1:7,200 & 1:14,400	100 @ 7,200	142 (5,000)	
10/11-13/92	Color	9" print and film (rolls 1-8)	-15.5	280	1:4,800	800	226 (8,000)	

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10/10/92	Black and white orthophotos	9" print and film (roll HI 1539)	-10.4 Little Colorado Rivermile 1.5	-4.1 Little Colorado Rivermile 12	1:6,000 & 1:14,400	60 @ 6,000	226 (8,000)	
05/30-06/02/93	Color	9" print and film (rolls 4-10)	-15.5	267 + Little Colorado River	1:4,800	1,730	226 (8,000)	
05/29/93	Color	9" print and film (roll 1)	46.5	60.0	1:25,000	297 (for all 1993 photos)	226 (8,000)	
05/29/93	Color	9" print and film (roll 1)	-11.3	-7.0	1:3,000		226 (8,000)	
05/29/93	Color	9" print and film (roll 1)	75.4	120	1:8,000 & 1:10,000		226 (8,000)	
05/29/93	Color	9" print and film (roll 2)	214	267	1:15,000		226 (8,000)	
09/02/93	Color	9" print and film (roll HI 1478C)	F1	unknown	1:25,000	unknown	226 (8,000)	Photos missing; Horizons may have film
05/28-29/94	Color	9" print and film (roll 1-10)	-15.5	281 + Little Colorado River	1:4,800	1,730	226 (8,000)	
05/28-29/94	Black and white	9" print and film (roll 1-10)	29 2	42 9	1:6,000 & 1:14,400	152	226 (8,000)	
05/29-31/95	Color	9" print and film (roll 1-9)	-15.5	281 + Little Colorado River	1:4,800	1,730	226 (8,000)	
03/24/96	Color	9" print & film (roll unknown)	-9,43,51,55,68	71,93,122,194,209	1:4,800	10	226 (8,000)	Kearsley Veg. sites
03/24-26/96	Black and white	9" print & film (roll 1-8)	-15.5	281 + Little Colorado River	1:4,800	1,730	226 (8,000)	

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03/31/96	Black and White	9" print & film (roll HI 1823)	174 [Toroweap]	179 [Prospect]	1:14,400	23	226 (8,000)	
04/04-07/96	Black and White	9" print & film (roll 1-8)	-15.5	281 + Little Colorado River	1:4,800	1,730	226 (8,000)	
09/01-03/96	Black and White	9" print & film (roll 1-9)	-15.5	281 + Little Colorado River	1:4,800	1,730	226 (8,000)	
09/01-03/96	Color	9" print & film (roll 7)	-9 select sites	225	1:4,800	160	226 (8,000)	GCES long term monitoring sites and NAU campsites
08/31-09/03/97	Black and White	9" print & film (roll 1-7)	-15.5	281 + Little Colorado River	1:4,800	1,730	226 (8,000)	
08/31-09/03/97	Color	9" print & film (roll 1)	-9 select areas	225	1:4,800	160	226 (8,000)	GCES long term monitoring sites and NAU campsites
8/26/98	HYDICE 312 pixel array 206 channels	Digital hyperspectral data	-11 0 7.5	-4.5 1 8	1.5 m [?]	24	481-679 (17,000-24,000) ⁵	Data available upon specific request
09/05-07/98	Black and White	9" print & film (roll 1-7)	-15.5	281 + Little Colorado River	1:4,800	1,730	439 (15,500)	Flight conducted during severe tributary flooding. Flows not steady

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09/09/98	Color	9" print & film (roll 1)	-6.5 select areas	280 [Pearce Ferry]	1:4,800	160	439 (15,500)	Flight conducted during severe tributary flooding. Flows not steady
10/04/98	AVIRIS	digital	-5.5	-12.0	2.7 m	10	283-410 (10,000-14,500) ⁵	Data available upon specific request
09/05/99	Black and White	9" print & film (roll unknown)	-15.5	281 + Little Colorado River	1:4,800	1,730	439 (15,500)	
09/05/99	Color	9" print & film (roll unknown)	0 select areas	190	1:4,800	160	439 (15,500)	Flight lines same as Black and White mission
9/06/99	Color	digital	-3 1 20.5 29	0 3 23.5 32	40 cm	10	439 (15,500)	Mission described in Open-File Report 02-222, available through the GCMRC library
16 intervals between 1990-91	Black and White from helicopter	2" film negatives	0 select areas	224	variable	2,000	variable	Brian Cluer's Beach Sites
09/28/1999 - 10/01/1999	CIR	3 band CIR Digital Orthophoto	-15.5	280	30 cm	3000	Variable	Collected with Kodak Digital Camera

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03/26-04/03/00	Color Infrared	9" print, film, and 14-micron digital scans of raw tif images, orthophotos, and compressed sidded images	-15.5	281 + Paria, Little Colorado River, Kanab, Tapeats, Shinumu & Havasu confluences	1:20,000 .276 m (.92 foot) resolution	625	226 (8,000)	
03/26-04/03/00	Black and White	Digital unprocessed tif files Raw and processed lidar points, contour vectors, DEMs ⁶ and TINs ⁷	-15.5	281 + Paria, Little Colorado River, Kanab, Tapeats, Shinumu & Havasu confluences	1:20,000 .3048 m (1.0 foot) resolution, 4096 pixel swath	estimated 1,500	226 (8,000)	
07/02-7/5/00	Color Infrared	film and 21-micron digital scans	-15.5	281 + Paria, Little Colorado River, Kanab, Tapeats, Shinumu & Havasu confluences	1:4,800 .1 m (.33 foot) resolution	1,730	226 (8,000)	
07/25/00	Daedalus 1268 ATM 12 channel	digital	30	74	1.0 meter resolution, 640 pixel swath	continuous, 12 -band data strip centered on river	226 (8,000)	

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07/26/00	Daedalus 1268 ATM 12 channel predawn thermal infrared	digital	51.5	53.5	1.0 meter resolution, 640 pixel swath	continuous, 12-band data strip centered on river	226 (8,000)	
08/29-31/00	Black and White	Digital unprocessed tif files, xml files orthophotos, and compressed sidded images Raw and processed lidar points, contour vectors, DEMs ⁶ and TINs ⁷	-15.5	85	0.18288 meter (0.6 foot) resolution, 4096 pixel swath	940	226 (8,000)	
09/02/00	Black and White, high gain	Digital unprocessed tif files, xml files orthophotos, and compressed sidded images	-15.5	0	0.18288 meter (0.6 foot) resolution. 4096 pixel swath	168	226 (8,000)	
09/04/00	Color	9" print & film photogrammetric vector contours, TINs, and DEMs	44 59	47 62	both river segments at three scales: 1:12,800, 1:6,400, and 1:4,000	23 33 48	226 (8,000)	

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09/06/00	Color Infrared	9" print, film, and 14-micron digital scans	-15.5	103	1:20,000 .3048 m (1.0 foot) resolution	181	1,754 (31,000)	Collected under overcast conditions
09/15-18/00	Black and White	Digital unprocessed tif files, xml files orthophotos, and compressed sidded images Raw and processed lidar points, contour vectors, DEMs ⁶ and TINs ⁷	-15.5	85	0.6 foot resolution, 4096 pixel swath	1080	226 (8,000)	
09/05/00	Black and White, high gain	Digital unprocessed tif files, xml files orthophotos, and compressed sidded images	-15.5	0	0.18288 meter (0.6 foot) resolution, 4096 pixel swath	223	226 (8,000)	
6/30/01-07/02/01	Black and white	Digital unprocessed tif and xml files	-15.5	279.8	.18-.24 meter (aprox 1 ft) per pixel	1180	226 (8,000)	700 meter swath 38.5% of river corridor not delivered ⁸
6/30/01-07/02/01	Black and white	Digital unprocessed tif and xml files	-15.5	279.8	.18-.24 meter (aprox 1 ft) per pixel	1210	226 (8,000)	700 meter swath 41.5% of river corridor not delivered ⁸

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5/26/02-5/28/02	Natural color	Unrectified imagery and vector digital data stored as e00 files, tiff & html files	-2.2 1.1 21.9 29.4 42.5 54.4 63.3 86.4 119.1 207.3 224.3	0.1 2.8 23.6 32.0 45.4 56.1 66.2 87.9 123.0 208.9 225	.25 meter contour interval .3 meters per pixel for imagery	11 coverages	226 (8,000)	Integrated Long Term Monitoring Reaches Scanned at 15 microns
5/24/02-06/05/02	Natural color, panchromatic and color infrared	Digital unprocessed tif files, xml files orthophotos, and compressed sidded images	-15.5	279.8	.22 m resolution per pixel for panchromatic, .44 m resolution per pixel for multispectral data	234 ortho quarter quads	226 (8,000)	
11/15/02	LIDAR data	Xyz data files of ellipsoid heights	1 22 29 41	3 23.5 29 32	Spot diameter 46 cm; four overlapping flight lines producing 80 cm. Altitude: 1,828 above ground level		1115 (39,470)	Average vertical accuracy: 17 cm DATIS II Sensor
5/26/03-5/27/03	Digital video imagery, LIDAR data	MPEG files, xyz data saved as ASCII files	29.4 42.5	32.0 45.4	Spot diameter 20 cm, average 40 cm spot spacing		226 (8,000)	Average vertical accuracy: 8 cm FLI-MAP Sensor

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5/24/04-5/30/04	Color Infrared	Digital unprocessed tif files, xml files orthophotos, and compressed sidded images	-15.5	277	22 cm	234 ortho quarter quads	226 (8,000) Dam to Phantom Ranch, 282-340 (10,000-12,000) Phantom Ranch to Pearce Ferry	Imagery not yet received by library, expected by December 2004
5/29/04-5/30/04	LIDAR data	Xyz data files of ellipsoid heights	1.1 21.9 29.4 42.5 54.4 63.3	2.8 23.6 32.0 45.4 56.1 66.2	Spot diameter 15 cm, average 80 cm spot spacing		226 (8,000)	Imagery not yet received by library, expected by December 2004

¹ Refers to approximate distance from Lee's Ferry

² The relationship between distances on a map and the corresponding distances on the earth's surface expressed as a fraction or a ratio (constant for a given map).

³ The area on the ground represented by one pixel

⁴ Scale is inferred by doubling the altitude of the plane

⁵ Range of stream gage data at Lee's Ferry during daylight hours for that date

⁶ Triangular Irregular Network

⁷ Digital Elevation Model

⁸ For more detail regarding missing areas see *Breedlove, Michael. 2002. EnerQuest 2001 Panchromatic and Color-Infrared Image Data Review of Deliverables Contract 01-WRCN-0019* available electronically through the GCMRC library.