
Guide to the Records of the Owens Valley Radio Observatory, 1956-1967

Processed by Laurence M. Dupray.

Archives

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Descriptive Summary

Title: Owens Valley Radio Observatory records,

Date (inclusive): 1956-1967

Collection number: Consult repository

Creator: Owens Valley Radio Observatory

Extent: 2.5 linear feet

Repository: California Institute of Technology. Archives.
Pasadena, California 91125

Abstract: The Owens Valley Radio Observatory (OVRO) began operations in 1958 with the commissioning of two 90-foot radio telescopes built by Caltech. It was originally built to study radio galaxies, but is now used to look at the sun's magnetic field. The collection consists mostly of photographs showing the construction of various radio telescopes.

Language: English.

Access

The collection is open for research. Researchers must apply in writing for access.

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Preferred Citation

[Identification of item, box and file number], The Records of the Owens Valley Radio Observatory. Archives, California Institute of Technology.

Acquisition Information

The OVRO collection was donated to the Institute Archives in 1999 by Dr. Anneila Sargent, current director of the Owens Valley Radio Observatory.

History of Owens Valley Radio Observatory

The Owens Valley Radio Observatory (OVRO), the largest university-operated radio observatory, came to life in the late 1940s through the influence of three individuals: Lee DuBridge, president of Caltech; Robert Bacher, chairman of the Division of Physics, Mathematics and Astronomy; and Jesse Greenstein, professor of astrophysics. In 1954, Caltech occupied a central position in the American radio astronomy program. John Bolton and Gordon Stanley, two respected Australian astronomers, joined the Caltech faculty in order to undertake the construction of large dishes. In 1956 the first radio telescope, a 32-foot antenna, was erected on Palomar Mountain. It was dismantled in 1958 and transferred to the Owens Valley site. At the same time, two 90-foot (27-meter) telescopes were completed. Ten years later, an even bigger antenna, a 130-foot (40-meter) dish was finished. It was originally built to study radio galaxies but is now used to look at the sun's magnetic field. The last major instrument at the observatory is the millimeter-wave array. It consists of six 34-foot (10.4-meter) dishes (also called Leighton's dishes).

Scope and Content of Collection

The OVRO collection consists mostly of photographs showing the construction of various telescopes. All the instruments but the millimeter-wave array are described in the Owens Valley Radio Observatory collection.

Researchers should refer to two excellent articles for additional historical details on radio astronomy and OVRO:

Cohen, Marshall H. "The Owens Valley Radio Observatory: Early Years." *Engineering & Science* 57/3 (Spring 1994), 14-23.

[Dietrich, Jane.] "...and OVRO at 40." *Engineering & Science* 61/3 (1998), 36-41.

Section I. This section is devoted to the oldest radio telescope found at the Owens Valley site, the 32-foot radio telescope. It contains pictures of the telescope under construction and after completion.

Section II. The beginning of this section contains photographs of the construction of two 90-foot radio telescopes. These pictures are organized chronologically, starting with aerial views of the construction site and ending with the completed interferometric array. The last part of the section contains materials gathered for the dedication ceremony, as well as some engineering notes.

Section III. This section is the most comprehensive of all: it contains a large number of photographs, proposals, engineering notes and dedication material for the 130-foot radio telescope, the latest to be built at OVRO.

Section IV. This last section contains only a few pictures, which were not taken at the Owens Valley facility. It shows the Seacliff interferometer in Sydney, Australia, with John Bolton observing. This instrument was one of the first radio telescopes ever built.

Indexing Terms

The following terms have been used to index the description of this collection.

Owens Valley Radio Observatory--Photograph Collections

Observatories

California Institute of Technology

Radio telescopes

Photographs

Related Collections

Papers of:

Marshall H. Cohen

Jesse Greenstein

Robert B. Leighton (Information on the millimeter-wave antennas can be found [here](#).)

Alan T. Moffet

Bruce Rule

Oral Histories of:

Marshall H. Cohen [partially restricted until 2010]

Robert B. Leighton

Series I: 32-Foot Radio Telescope

Box 1, Folder 1

Miscellaneous photographs 1956-1958
Series II: 90-Foot Radio Telescope

Photographs

Box 1, Folder 2

Aerial views

Box 1, Folder 3

Dish prototype

Box 1, Folder 4

Telescope model 1957

Box 1, Folder 5

Building construction 1956

Box 1, Folder 6

Early construction work Dec. 1956-Jan. 1957

Box 1, Folder 7

Parts for antenna and pedestal construction 1958 (Allison Manufacturing Company)

Box 1, Folder 8

Pedestal construction-Frame June-July 1958

Box 1, Folder 9

Pedestal construction-Lower level (with panels) June-July 1958

Box 1, Folder 10

Pedestal construction-Upper level and completion June-July 1958

Box 1, Folder 11

Crane collapse Aug. 1958

Box 1, Folder 12

Alidade assembly on pedestal

Box 1, Folder 13

Dish construction 1962

Box 1, Folder 14

Dish erection

Box 1, Folder 15

Dish erected onto pedestal (picture with Gordon Stanley)

Box 1, Folder 16

Panels mounting onto dish

Box 1, Folder 17

Control panels n.d. (picture with Gordon Stanley)

Box 1, Folder 18

Miscellaneous

Box 1, Folder 19

Slides and negatives**Dedication Dec. 12, 1958**

Box 1, Folder 20

Invitation list

Box 1, Folder 21

Photographs

Box 1, Folder 22

Schematic and figures

Box 1, Folder 23

Notes on "90' antenna array"**Series III: 130-Foot Radio Telescope****Photographs**

Box 2, Folder 1

Erection site Aug. 1966

Box 2, Folder 2

Telescope model (picture with Bruce Rule and L. DuBridge) n.d.

Box 2, Folder 3

Dish segments Oct. 1966 and Apr. 1967

Box 2, Folder 4

Golden, Rule, Slagle, Hoggan Apr. 1967

Box 2, Folder 5

Dish under construction Oct. 1966

Box 2, Folder 6

Damaged segments after dish was dropped and repairs July 1967

Box 2, Folder 7

Dish completed, not erected Nov. 1966

Box 2, Folder 8

Pedestal construction Apr.-June 1967

Box 2, Folder 9

Lifting of dish onto pedestal July 1967 (picture of Bruce Rule)

Box 2, Folder 10

View of dish erected July 1967

Box 2, Folder 11

Dish panel assembly Aug. 1967

Box 2, Folder 12

Telescope views Sept.-Oct. 1967

Box 2, Folder 13

Alidade base and azimuth bearing at Westinghouse Sunnyvale plant n.d. (picture of Gordon Stanley)

Box 2, Folder 14

Computer n.d.

Box 2, Folder 15

Users n.d. (Cannon, W.H.; Cesarsky, D.; Cohen, M.H.; Ewing, M.S.; Fischer, A.M.; Grueff, G.; Hardebeck, E.G.; Harriman, J.A.; Lockhart, I.A.; Moffet, A.T.; Read, R.B.; Rogstad, D.H.; Seielstad, G.A.; Weliachew, L.N.)

Box 2, Folder 16

Negatives

Box 2, Folder 17

Schematic n.d.**Dedication**

Box 2, Folder 18

Invitation list

Box 2, Folder 19

Invitation letters

Box 2, Folder 20

Invitations and program

Box 2, Folder 21

Presentation (photographs and negatives) on OVRO

Box 2, Folder 22	Correspondence 1968-1969
	Proposal
Box 2, Folder 23	For a project in radio astronomy "The construction of a large radio telescope at the Owens Valley observatory." 1962
Box 2, Folder 24	To National Science Foundation (NSF) for a project in radio astronomy "The Owens Valley array." 1969
Box 3, Folder 1	To National Aeronautics and Space Administration (NASA) -- "The Owens Valley interferometer." Feb. 1971
	Engineering notes on
Box 3, Folder 2	"Preliminary servo-uncorrected error distribution of 130' Ø telescope structure at 20 MPH and 10 MPH wind." May 27, 1964
Box 3, Folder 2	"130' Ø radio telescope wind loads." June 13, 1965
Box 3, Folder 3	"Radio telescope-design review." May 13, 1964
Box 3, Folder 3	"Mass moment of inertia of 130' Ø radio telescope." March 8, 1966
Box 3, Folder 4	"Stiffness calculations of drives for 130' Ø radio telescope." Feb. 18, 1964
Box 3, Folder 4	"Foundation survey." Apr. 20, 1964
Box 3, Folder 5	Base carriage, Mar. 19, 1965; pedestal, June 25, 1965; dish, Dec. 19, 1965
Box 3, Folder 6	Boom and apex, Nov. 11, 1964
Box 3, Folder 7	Weights, Feb. 9, 1966
Box 3, Folder 8	Base truck drive, June 23, 1964; base truck hydraulics, June 25, 1964; azimuth drive, Apr. 2, 1965
Box 3, Folder 9	Elevation drive, June 23, 1964; azimuth preload, June 16, 1964; bearings, Sept. 22, 1965
	Series IV: Australian Telescope
Box 3, Folder 10	Seacliff interferometer, Sydney 1952 (picture with John Bolton)