Table of Contents

Collection Overview ........................................................................................................ 1
Administrative Information .............................................................................................. 1
Descriptive Entry.............................................................................................................. 1
Names and Subjects ...................................................................................................... 1
Container Listing ......................................................................................................... 3
Collection Overview

Repository: Smithsonian Institution Archives, Washington, D.C., osiaref@si.edu
Title: Richard H. Emmons Papers
Identifier: Accession 07-154
Date: circa 1954-1998
Extent: 4 cu. ft. (4 record storage boxes)
Creator:: Emmons, Richard H., 1919-2005
Language: Language of Materials: English

Administrative Information

Preferred Citation
Smithsonian Institution Archives, Accession 07-154, Richard H. Emmons Papers

Descriptive Entry

Richard H. Emmons (1919-2005), astronomer, engineer, and proponent of astronomy education, taught astrology and physics at Kent State University and later worked as an engineer for Goodyear Aerospace Corporation. He was well-known for the planetariums he established, over 23 in all. Emmons was also the team leader for the North Canton Moonwatch Team. Moonwatch teams were established around the world by the Smithsonian Astrophysical Observatory, Moonwatch Division, 1956-1975, to track and photograph artificial satellites. This accession consists of records created and maintained by Emmons documenting his work as an astronomer and an engineer, his participation in Moonwatch, and his research interests. Materials include correspondence and memoranda; theories, calculations, charts, graphs, and notes; images of astronomers, equipment, facilities, and the sky; articles written and co-written by Emmons; newspaper clippings; professional society and astronomy club newsletters; and research and reference materials such as journal articles, manuscripts, predictions, and technical documents. Some research and reference materials pre-date the date span of this accession, but would have been collected during this time period.

Names and Subject Terms

This collection is indexed in the online catalog of the Smithsonian Institution under the following terms:

Subjects:
Aerospace engineering
Aerospace engineers
Artificial satellites -- Tracking
Astronomers
Astronomy
Astronomy -- Study and teaching
Astrophysicists
Astrophysics
Planetariums
Satellites

Types of Materials:
Black-and-white photographs
Clippings
Color photographs
Manuscripts
Newsletters

Names:
Emmons, Richard H., 1919-2005
Goodyear Aerospace Corporation
Kent State University
North Canton Moonwatch Team
Smithsonian Astrophysical Observatory. Moonwatch Division
Container Listing

Box 1


Box 1 of 5  Proceedings of Lunar and Planetary Exploration Colloquium, September 23-24, 1959

Box 1 of 5  "Data Acquisition from Spacecraft," National Aeronautics and Space Administration (NASA), December 1962

Box 1 of 5  Proceedings of Lunar and Planetary Exploration Colloquium, January 12, 1959

Box 1 of 5  Proceedings of Lunar and Planetary Exploration Colloquium, October 29, 1958

Box 1 of 5  Proceedings of Lunar and Planetary Exploration Colloquium, July 15, 1958

Box 1 of 5  "Control, Guidance, and Navigation of Spacecraft," NASA, December 1962

Box 1 of 5  "Geophysics and Astronomy in Space Exploration," NASA, December 1962

Box 1 of 5  "Aerodynamics of Space Vehicles," NASA, December 1962


Box 1 of 5  "Celestial Mechanics and Space Flight Analysis," NASA, December 1962

Box 1 of 5  Proceedings of Lunar and Planetary Exploration Colloquium May 13, 1958


Box 1 of 5  "Satellite Orbits in Theory and Practice," c. 1957

Box 1 of 5  "Manual for Astronomical Photoelectric Photometry," 1962


Box 1 of 5  "A Form for the Reduction of True Airspeeds," July 19, 1945

Box 1 of 5  "Basic Design Principles Applicable to Reaction-Propelled Space Vehicles," by D. C. Romick, August 1954
Box 1 of 5
"Longitude Positioning and Orbit Control of the 24-hour, Equatorial Satellite,"
by G. Kang and M. F. Kenahan, January 21-23, 1963

Box 1 of 5
Photograph of Member (?) of Akron-Canton Moonwatch Team

Box 1 of 5
Astronomy Club of Akron Newsletter, 1974

Box 1 of 5
"The Star of Bethlehem" Script - The North Canton Planetarium

Box 1 of 5

Box 1 of 5
Observations per Month, October 1957-May 1961

Box 1 of 5
"Artificial Satellites and Space Exploration," Prepared by Goodyear Aircraft Corporation and the North Canton Planetarium (Script for Slide Show)"
"Conversion Table Useful in Approximating Future Position of the First Russian Satellite, 1957

Box 1 of 5
Steadman Thompson Correspondence, 1956

Box 1 of 5
Richard C. Vanderburgh Correspondence, 1962-1964

Box 1 of 5
"The Satellite Story," Operator's Supplementary Information, Suggestions, and Regulations

Box 1 of 5

Box 1 of 5

Box 1 of 5
"Project Space Track: Charts to Determine the Visibility of Artificial Earth Satellites," United States Air Force, Air Research and Development Command, April 1959

Box 1 of 5

Box 1 of 5

Box 1 of 5
Cambridge Satellite Observer, 1958

Box 1 of 5
Akron-North Canton-Canton Local Group, Volunteer Observers

Box 1 of 5
"Man in Space: The Box Score"

Box 1 of 5
Visible Photometric Measurements of Satellites

Box 1 of 5
"Planning Visual or Photographic Observations of Man-Made Satellites"
Society of Photographs Scientists and Engineers

Box 1 of 5
Independent Tracking Coordination Program, "The Pathfinder Star Atlas"
Box 1 of 5  Meeting Schedule, 1956-1957
Box 1 of 5  Albert Werner Correspondence, 1968-1971
Box 1 of 5  "A Method for Prediction of Satellite Positions and Visibilities," by Paul R. Measel and Kenneth E. Kissell
Box 1 of 5  Leon Campbell, Jr. Correspondence, 1961
Box 1 of 5  "Orbital Flight Handbook for the National Aeronautics and Space Administration," Volume 1, Martin Space Systems Division (2 folders)
Box 1 of 5  Hand-held Bright Satellite Photometer Technical Information, 1963
Box 1 of 5  Dr. Johnson Phone Call, June 11, 1965
Box 1 of 5  "Image of the Sun on a Specular Sphere to an Infinitely Distant Observer," 1965
Box 1 of 5  Directions for Using the Goodwin Resolving Power Barlow-Type Lens
Box 1 of 5  Predictions, 1968
Box 1 of 5  Arthur Leonard, 1965-1968
Box 1 of 5  Western Satellite Research Network Bulletin, 1966
Box 1 of 5  Echo I Calculations, 1963
Box 1 of 5  Size Characteristics of Objects in Orbit, October 20, 1961
Box 1 of 5  Moonwatch Newsletter, 1961
Box 1 of 5  Echo II Predictions, 1965-1969
Box 1 of 5  SA-5 Launch, 1963
Box 1 of 5  Echo II Launch, 1963
Box 1 of 5  Perforation Hazard at Lunar Surface, 1963
Box 1 of 5  Second-order Atmospheric Extinction, 1966
Box 1 of 5  Sidus Ludoviciana, 1957-1967
Box 1 of 5  Yuma Observatory Photographs, 1967

Box 2
Box 2 of 5  Visibility Enhancement of Interplanetary Vehicles Using Gas Clouds
Box 2 of 5  Albedo Corrections on Ground-based Photometric Observations of Satellites, 1966
Box 2 of 5  "Technical Note: Temperature Control of the Explorer IX Satellite," by Charles V. Woerner and Gerald M. Keating (NASA), July 1962
Box 2 of 5  On-Site Observation Period Technical Discussion
Box 2 of 5  "Visual Determinations of Stellar Magnitudes and Analyses for Grid Sphere Drag Experiment Satellites," by Richard H. Emmons (Goodyear Aerospace Corporation), October 1972
Box 2 of 5  Rachan J. Gregg Correspondence, 1989-1995 (4 folders)
Box 2 of 5  Riverside Telescope Makers Conference, Escondido, California, May 1990 - Photographs
Box 2 of 5  "Photometric Periods of Artificial Satellites," 1990
Box 2 of 5  "Solar Eclipse Photography for the Amateur," 1963
Box 2 of 5  Astronomy Club of Akron Newsletter, 1977
Box 2 of 5  Tracking Kits
Box 2 of 5  "Astrophysics and Optical Astronomy," by Shea L. Valley
Box 2 of 5  "Experience of the Smithsonian Astrophysical Observatory in the Construction and Use of Star Catalogues," by K. Haramundanis, July 1967
Box 2 of 5  Acknowledgments
Box 2 of 5  NASA, Langley Research Center, 1969
Box 2 of 5  The Arizona-Tonantzintla Catalogue
Box 2 of 5  Charles E. Manry Correspondence, 1965
Box 2 of 5  Photometric Normalization Error Due to Error in Slant Range, 1966
Box 2 of 5  Photometric Observations of Echo I, Spring 1968
Box 2 of 5  24" Telescope, 1966
Box 2 of 5  Determination of the Brightness Variation of PAGEOS I, 1968
Box 2 of 5  Photometric Signature of Explorer XIX, 1968
Box 2 of 5  Recommended Utilization of NASA's Mobile Photometric Observatory During the Total Solar Eclipse of March, 7, 1970 (1968)
Box 2 of 5  "Solar Physics," by Harold Zirin, 1963
Box 2 of 5  "Scientific Results of the Surveyor I Lunar Landing," by Leonard D. Jaffe
Box 2 of 5  "Night Cloud Coverage in the Southwest with Reference to Astronomical Observing Condition," by Harlan J. Smith and Richard E. McCrosky
Box 2 of 5  Herschel Wedge Directions
Box 2 of 5  "A Treatise on Astronomy," by Elias Loomis, 1869
Box 2 of 5  Surveyor I Preliminary Results, 1966
Box 2 of 5  "Quasi-stellar Objects," by Maarten Schmidt, 1966
Box 2 of 5  "The SAO News," 1962-1963
Box 2 of 5  "The Bright Stars," by Donald A. MacRae
Box 2 of 5  Observers' Forum, 1977-1978
Box 2 of 5  Photography with your Telescope
Box 2 of 5  "Probability of Record Satellite Images Optically," by Kurt Lambeck, 1966
Box 2 of 5  Eyepiece Photometry, 1967
Box 2 of 5  "Stellar Magnitudes and Atmospheric Extinction," by Edwin A. Roth and Richard A. Berg, 1964
Box 2 of 5  "Photometric Studies of Asteroids," by T. Gehrels and D. Owings, 1961
Box 2 of 5  Lamps
Box 2 of 5  "Quantitative Radiant Intensity Measurements Using Photographic and Electronic Imaging," by Eugene B. Turner (Defense Documentation Center)
Box 2 of 5  "Photographic Spectrometry and Radiometry on Distant Field Sources" by Andrew Guttman
Box 2 of 5  Theory for Photographic Photometry
Box 2 of 5  "The Soar Constant," by Francis S. Johnson, 1954
Box 2 of 5  "The Visibility of an Earth Satellite," by R. Tousey
Box 2 of 5  "Visual Thresholds for Telescopic Satellite Observation," by Bradford A. Smith, 1959

Box 2 of 5  "The Effects of the Space Environment on Optical Materials and Systems," University of California, Los Angeles (UCLA) Lecture #18

Box 2 of 5  Stellar Magnitude Increment of the Echo I Satellite due to the Earth's Albedo, 1964


Box 2 of 5  "A Mobile Photometric Observatory for Satellite Studies," for NASA by Goodyear Aerospace Corporation

Box 2 of 5  Wire Grid Spheres, 1963-1972

Box 2 of 5  Approximate List of Brightest Stars, 1973

Box 2 of 5  Orbit Selection Criteria

Box 2 of 5  Calibration and Extinction Coefficients Obtained at Palomar Mountain During September-October 1968

Box 2 of 5  Determination of Zero-Point Calibration Terms, 1967

Box 2 of 5  Eclipse Characteristics of Close Earth Satellite Orbits, 1961

Box 2 of 5  Cloudcroft and Organ Mountain Facilities, 1965

Box 2 of 5  "Wide Band (Visual Spectrum) Photoelectric Photometry of PAGEOS During its First Fifteen Months in Orbit," by Richard C. Vanderburgh

Box 2 of 5  "The New Astronomers," by Leo Goldberg, 1965

Box 2 of 5  "A Bridge to Relativity Theory," by J.S. Frame

Box 2 of 5  "The 1954 Opposition of Mars" - Talk Given by Emmons to Astronomy Club of Akron, April 23, 1954

Box 2 of 5  Model Lunar Surface


Box 2 of 5  Space Optics Course, University of California, June 18-29, 1962

Box 2 of 5  Climates of the United States, 1941

Box 2 of 5  Radio Astronomy and Radio Sources, 1966
Box 2 of 5


Asteroid Paths

"Can We Learn From Other Planets?" by Fred Hoyle, 1964

"The Planet Jupiter" by R. Wildt, H. J. Smiths, E. E. Saltpeter, and A. G. W. Cameron, 1963

"Stellar Evolution and the Origin of the Chemical Elements," by Jesse L. Greenstein

Interplanetary Guidance, American Astronomical Society, 1960

Mars Atmosphere and Uncertainties, 1963

Problems Requiring Solutions, 1968


"Visual Photometric Observation of W Serpentis," by Dean B. McLaughlin, 1961


Box 3

"Photoelectric Reductions," by Robert H. Harde

Interplanetary Midcourse Guidance, 1959

Visit to Mobile Photometric Tracking Observatory, 1967

NASA-Lewis Comments, 1964

"Change of Albedo of the First Artificial Earth Satellite as a Result of the Action of External Factors," by I. M. Yatsunskii and O. V. Gurko

Trip to UCLA, Department of Meteorology, 1965


"Environmental Effects Evaluation - Project Apollo," by R. H. Emmons (Goodyear Aerospace Corporation), 1965

"Optical Problems of the Satellites," by R. Tousey, 1957
<table>
<thead>
<tr>
<th>Box 3 of 5</th>
<th>Model of Mobile Observatory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Box 3 of 5</td>
<td>&quot;Visual Detection of Light Source on or Near the Moon,&quot; by S. H. Dole, 1957</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Proceedings of University of Miami Symposium on Optical Properties of Orbiting Satellites, May 1969</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>&quot;Soviet Space Programs,&quot; by Nicholas Johnson (Teladyne Brown Engineering)</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Class Notes and Lectures</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Zenith Distance and Slant Range Finder</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>1972 Solar Ephemeris and Surveying Instrument Manual</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Subroutine Culm</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>PAGEOS Predictions, 1966</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Documentary Photographs Taken at Sulfer Grove, United Sates Air Force, October 29, 1965 (List only)</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>American Astronomical Society, 1962</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Raymond H. Wilson, Jr. Correspondence, 1962-1964</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Specific Observing Site for PAGEOS Photometric Surveillance, 1966</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Trip to NASA Headquarters to Discuss Technical Proposal (Echo Satellite), 1962</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>PAGEOS Fragments, 1977</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Two-Line Orbital Elements, 1982</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>NASA Prediction Bulletin, 1982</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Map Overlay Method of Hand Computing Station Predictions, 1982</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Equipment Images</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Miscellaneous Information for Team's Use</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>1960 Lambda Sputnik V</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>1958 Delta Two</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>&quot;Phases of the Moon, 1800-1959,&quot; by Bernice L. Morrison (United States Naval Observatory Circular No. 112), 1966</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>&quot;A Letter to Gregory Roberts, Part II,&quot; by Wilcox P. Overbeck, 1962</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>&quot;Timing Results for Seven Pulsars,&quot; by Gordon E. Gullahorn, John M. Rankin, David W. Richards, and Robert R. Payne (National Astronomy and Ionosphere Center)</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Gun Director, mark 5I, Mod 2, Operator's Manual, 1944</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>1958 Epsilon Explorer IV Cylindrical Radiation Counters</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>1960 Gamma Three</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>&quot;Simplified Satellite Prediction from Modified Orbital Elements,&quot; National Academy of Sciences, National Research Council</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>&quot;The Reflector: Newsletter of the Astronomical League,&quot; 1986</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Light Filters, 1980</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>&quot;Catalogue of Satellite Observations,&quot; SAO, 1960</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Satellite Charts</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>1959 Delta II Explorer VI Paddlewheel Satellite</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>&quot;Perturbations of Orbits of Artificial Satellites Due to Air Resistance,&quot; by Yu B. Batrakov and B. F. Proshkurin (NASA Technical Translation), 1960</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>&quot;Observation of an Artificial Satellite by the Expectation Method,&quot; by V. M. Vakhnin and V. V. Beletskiy (NASA Technical Translation), 1960</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>1959 Satellite Tracking Pictures (Empty Envelope)</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>1958 Delta II Sputnik III</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Star Transits for Walnut Creek Computed by China Lake, 1961-1962</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Summary of WSRN Satellite Observations, 1968</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Moonwatch, 1960</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Proceedings of Lunar and Planetary Exploration Colloquium, 1960, Volume 2, Number 2</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Proceedings of Lunar and Planetary Exploration Colloquium, 1958, Volume 1, Number 3</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Proceedings of Lunar and Planetary Exploration Colloquium, 1958, Volume 1, Number 2</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Proceedings of Lunar and Planetary Exploration Colloquium, 1958, Volume 1, Number 1</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Proceedings of Lunar and Planetary Exploration Colloquium, 1959, Volume 1, Number 6</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>GAC Purchase Acceptance Test Procedures, 1966</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Reflectivity Degradation of Aluminum Films Due to Solar Winds in Interplanetary Space, 1963</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Radius of Curvature and Reflectivity of a Specular Spherical Surface</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Approximate Values for the Primary Atmospheric Extinction, 1967</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>G2S2 Program, 1964</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Meteoroid Hazard Problems and 11th Colloquium of Lunar and Planetary Exploration, 1961</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Preliminary Analysis for Solar Concentrator Model for Electromechanical Satellite Power Plant, 1962</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Moonwatch Certificate</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Monthly Technical Progress Report - Satellite Photometric Observatory, 1971</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Bob Rogers Correspondence, 1971</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>William Hirst Correspondence, 1965</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Satellite Orbits Group Newsletter, 1978</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Solar Color Indices from Multicolor Photometric Observations of Artificial Satellites, 1970</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Photograph of Rocket</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Observations, September 18, 1973</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Satellite Sunset Points, 1969</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Envelope with Soviet Stamps</td>
</tr>
<tr>
<td>Box 3 of 5</td>
<td>Mean Anomaly Correction, 1966</td>
</tr>
</tbody>
</table>
Box 3 of 5  Third International Space Science Symposium, 1962
Box 3 of 5  Grigorevsky Correspondence, 1976, 1989
Box 3 of 5  Satellite Prediction Program, 1969
Box 3 of 5  Machined and Polished 4" Diameter Sphere
Box 3 of 5  Observations, 1970-1973
Box 3 of 5  NASA Prediction Bulletins, 1975
Box 3 of 5  Explanation of Equator Crossing Predictions
Box 3 of 5  "Space Traffic Surveillance"
Box 3 of 5  NASA Prediction Format Explanation, 1984
Box 3 of 5  Observers' Forum, 1980
Box 3 of 5  Teacher Education and Certification Standards, 1984
Box 3 of 5  Seasat
Box 3 of 5  Preliminary Predictions for Skylab at North Canton, 1979
Box 3 of 5  Predictions, 1968
Box 3 of 5  Predictions, 1957

Box 4

Box 4 of 5  Predictions, 1966
Box 4 of 5  Environmental Studies Support Technology Summary Report (Goodyear Aerospace Corporation), 1965
Box 4 of 5  Stellar Magnitudes and Grid Sphere Drag Experiment Satellite, 1972
Box 4 of 5  Instantaneous Orientation of Planar Element of Satellite's Surface That is Specularly Reflecting Sunlight
Box 4 of 5  UBVRIJKL Photometry of the Bright Stars
Box 4 of 5  "Absolute Calibration of the Arizona Photometry," by H. L. Johnson, 1965
Box 4 of 5  "South Africa Baker-Nunn Photography of the PAGEOS-A Inflation and Apogee Burn of the Agena D," by W. Kirchoff and J. Latimer (SAO)

Box 4 of 5  Astronomy Photography

Box 4 of 5  Operations Data Sheet

Box 4 of 5  Photometric Astronomy Theory

Box 4 of 5  "Orbital Data Analysis of Grid Sphere Drag Experiment," by L. J. Schneider (Goodyear Aerospace Corporation), 1972

Box 4 of 5  Predictions, 1964


Box 4 of 5  "An Iterative Method of Orbit Determination from Three observations of a Nearby Satellite," by R. E. Briggs and J. W. Slowey

Box 4 of 5  "Method for Computation of Satellite Orbits," by L. Jacchia, 1957

Box 4 of 5  Tiros-N Paper Model

Box 4 of 5  Photometric Calibrations, 1967

Box 4 of 5  Mobile Photometric Observatory, Goodyear Aerospace Corporation


Box 4 of 5  "PAGEOS Project: Compilation of Information for Use of Experimenter," by David E. Bowker (NASA Technical Note)

Box 4 of 5  "Orbital Observations of Grid Sphere Drag Experiment," by Frederick J. Stimler and C. Larry Gray (Goodyear Aerospace Corporation), 1973

Box 4 of 5  Lincoln Calibration Sphere

Box 4 of 5  Schjeldahl Thermal Control Coatings on Flexible Substrates

Box 4 of 5  Lunar and Planetary Exploration Colloquium, 1961

Box 4 of 5  Determining Echo I Satellite's OpticalDegradation, 1962

Box 4 of 5  Ground-based Photometric Surveillance, 1965-1969

Box 4 of 5  Case Institute of Technology Proposal, 1962
Box 4 of 5  "Advantages of a 4-Axis Tracking mount for the Photoelectric Photometry of Space Vehicles," by Kenneth E. Kissell, December 1965


Box 4 of 5  "Photographic Photometry," by Harold Weaver

Box 4 of 5  "Spaces of Potential Visibility of Artificial Satellites for the Unaided Eye," by Ingeborg Schmidt

Box 4 of 5  "Tracking by the Smithsonian Astrophysical Observatory," by F. L. Whipple and C. A. Lundquist

Box 4 of 5  Miscellaneous Correspondence, 1963-1964, 1972

Box 4 of 5  Miscellaneous Articles and Clippings (2 folders)

Box 4 of 5  Miscellaneous Calculations, Charts, Graphs, and Data (5 folders)

Box 5