

Special Reports of the Smithsonian Astrophysical Observatory

Numbers 1 through 113

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1	October 14, 1957 (re-issued December 2, 1957)	*Preliminary Orbit Information for USSR Satellites Alpha One and Alpha Two	G. F. Schilling and T. E. Sterne
2	November 5, 1957	*Additional Orbit Information for USSR Satellites 1957 Alpha One and Beta One	J. S. Rinehart and G. F. Schilling
3	November 15, 1957	*Some Preliminary Values of Upper Atmosphere Density from Observations of USSR Satellites	T. E. Sterne and G. F. Schilling
4	November 30, 1957	*Glossary of Astronomical Terms for the Description of Satellite Orbits	J. Ashbrook, G. F. Schilling, and T. E. Sterne
5	December 4, 1957	*Soviet Orbit Predictions and Orbital Information for USSR Satellites 1957 Alpha One, Alpha Two and Beta	G. F. Schilling and E. S. Fergusson
6	December 17, 1957	*Visual Observations of Alpha One Made by Moonwatch Stations During Lifetime of the Object	L. Campbell, Jr. and J. A. Hynek
7	December 31, 1957	*An Interim Model Atmosphere Fitted to Preliminary Densities Inferred from USSR Satellites	T. E. Sterne, B. M. Folkart, and G. F. Schilling
8	January 31, 1958	*Soviet Orbit Information for USSR Satellites 1957 Alpha Two and Beta One	G. F. Schilling
9	February 21, 1958	*Basic Orbital Data for Satellite 1957 Beta One	L. G. Jacchia
10	March 1, 1958	*Processed Observational Data for USSR Satellites 1957 Alpha and 1957 Beta	R. M. Adams, N. McCumber, and M. Brinkman
11	March 31, 1958	Status Reports on Optical Observations of Satellites 1958 Alpha and 1958 Beta Preliminary Results from Optical Tracking of the U.S. Earth Satellites	G. F. Schilling, ed. J. A. Hynek and F. L. Whipple

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		The Density of the Upper Atmosphere	T. E. Sterne
		Life Expectancy of Satellite 1958 Alpha	L. G. Jacchia
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12	April 30, 1958 (re-issued August 20, 1959)	Miscellaneous Information on the Artificial Earth Satellites	J. A. Hynek and G. F. Schilling, eds.
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		Soviet Orbit Information for Satellite 1957 Beta	J. B. Clarke and D. L. O'Hara
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13	May 21, 1958 (re-issued December 1, 1959)	*Orbital Results for Satellite 1957 Beta One	L. G. Jacchia
14	July 15, 1958	<i>Reports and Analyses of Satellite Observations</i>	G. F. Schilling, ed.
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		Preliminary Note on the Mass-Area Ratios of Satellites 1958 $\delta 1$ and 1958 $\delta 2$	G. F. Schilling, C. A. Whitney, and B. M. Folkart
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16	July 25, 1958	Positions of Satellite 1957 Beta One During the First 100 Revolutions	R. M. Adams, R. E. Briggs, and E. K. L. Upton
17	September 5, 1958 (out of print)	Positions of Satellite 1958 Alpha During the First 1400 Revolutions	R. G. Teske
18	October 4, 1958	<i>Satellite Data and Analyses</i>	G. F. Schilling, ed.
		Technical Parameters of Satellites 1958 Delta and 1958 Epsilon	J. B. Clarke
		Communications Center of the Optical Satellite Tracking Program	C. M. Peterson
		*Orbital Acceleration of Satellite 1958 Beta Two	L. G. Jacchia and R. E. Briggs
		Atmospheric Densities from Explorer IV	G. F. Schilling and C. A. Whitney
		Moonwatch Catalogue—July and August, 1958	E. P. Bullis and L. Campbell, Jr.

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		A Satellite Meteor-Trap	G. S. Hawkins
		*A Flashing Satellite for Geodetic Studies	C. A. Whitney and G. Veis
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		*The Diurnal Effect in the Orbital Acceleration of Satellite 1957 Beta One	L. G. Jacchia
		Progress Report on the Planning of an Artificial Satellite Containing an Astronomical Telescope	R. J. Davis
		A Suggested Rocket Experiment for Determination of Atmospheric Densities and Winds at Extreme Heights	R. E. McCrosky
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		Moonwatch Catalogue—September 1958	E. P. Bullis and L. Campbell, Jr.
21	February 27, 1959	*The Structure of the High Atmosphere—I. Linear Models	C. A. Whitney
		Moonwatch Catalogue—October, November and December, 1958	
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22	March 20, 1959 (re-issued March 3, 1961)	*The Earth's Gravitational Potential Derived from the Motion of Satellite 1958 Beta Two	Y. Kozai
		*On the Effects of the Sun and the Moon upon the Motion of a Close-Earth Satellite	Y. Kozai
23	March 30, 1959	The Orbit of Satellite 1958 Zeta	G. Veis
24	April 9, 1959	Catalogue of Satellite Observations for January and February 1959	R. G. Albert and R. M. Adams
25	April 20, 1959 (re-issued May 5, 1961)	*The Structure of the High Atmosphere II. A Conduction Model	C. A. Whitney
26	May 21, 1959	Catalogue of Satellite Observations for March and April 1959	R. G. Albert and R. M. Adams
27	June 30, 1959	An Iterative Method of Orbit Determination from Three Observations of a Nearby Satellite	R. E. Briggs and J. W. Slowey
		Determination of the Orbit of Satellite 1958 Beta One	A. S. Leonard

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28A	September 23, 1959	Catalogue of Satellite Observations: Addenda and Corrigenda, Station Coordinate Lists	
29	September 21, 1959	*Solar Effects on the Acceleration of Artificial Satellites	L. G. Jacchia
30	November 12, 1959	*Anticipated Orbital Perturbations of Satellite 1959 Delta Two A Table of the Times of Perigee Passage for Satellite 1959 Beta Two	Y. Kozai and C. A. Whitney R. E. Briggs
		*Note on the Secular Motions of the Node and Perigee of an Artificial Satellite	Y. Kozai
31	January 18, 1960	Catalogue of Satellite Observations for July and August 1959	R. G. Albert
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32	January 29, 1960	Catalogue of Satellite Observations	R. G. Albert
33	February 1, 1960	*On the Effects of Image Motion on the Accuracy of Measurement of a Flashing Satellite	J. A. Hynek
34 (C-8)	February 2, 1960	Catalogue of Observations of Satellite 1958 $\delta 2$ for the Period August 1-22, 1959	R. G. Albert
35 (C-9)	February 5, 1960	Catalogue of Observations of Satellite 1958 $\delta 2$ for the Period August 23-31, 1959	R. G. Albert
36 (C-10)	February 8, 1960	Catalogue of Additional Observations of Satellite 1958 $\delta 2$ for the Period May 1-May 29, 1959	R. G. Albert
37 (C-11)	February 10, 1960	Catalogue of Observations of Satellites 1958 $\delta 2$, 1958 Epsilon, and 1958 Zeta	R. G. Albert
38	January 15, 1960	Orbit Determination from Simultaneous Doppler-Shift Measurements	I. G. Izsak
39	March 30, 1960 (re-issued January 30, 1961)	A Variable Atmospheric-Density Model from Satellite Accelerations	L. G. Jacchia
40R	May 24, 1960 (revised June 30, 1960)	Orbital Elements for July and August, 1959 Satellite 1958 Alpha Satellites 1958 $\beta 1$ and $\beta 2$ Satellite 1958 $\delta 2$ Satellites 1959 $\alpha 1$ and $\alpha 2$ Satellite 1958 Gamma Relative Positions of the Sun and Perigee of an Artificial Earth Satellite	B. Miller C. A. Martin Y. Kozai R. C. Nigam I. G. Izsak P. E. Zadunaisky

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41	May 25, 1960 (out of print)	The Catalogue of Precise Satellite Positions	K. Lassovszky
		Preliminary Time Reduction for the Determination of Precise Satellite Positions	E. Weston
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43 (C-13)	May 25, 1960	Catalogue of Satellite Observations	D. V. Mechau
44 (C-14)	May 25, 1960	Catalogue of Satellite Observations	D. V. Mechau
45	July 11, 1960	List of Coordinates of Stations Engaged in the Observation of Artificial Satellites	D. V. Mechau
46	July 11, 1960	*The Effect of a Variable Scale Height on Determinations of Atmospheric Density from Satellite Accelerations	L. G. Jacchia
		Comment on the Paper Entitled "Symmetry of the Earth's Figure"	C. A. Whitney
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48 (C-16)	September 9, 1960	Catalogue of Satellite Observations	D. V. Mechau
49 (C-17)	September 9, 1960	Catalogue of Satellite Observations	D. V. Mechau
50	October 3, 1960	The Orbit of Satellite 1958 Alpha (Explorer I) During the First 10,500 Revolutions	P. E. Zadunaisky
51	October 17, 1960	Satellite Orbital Data	D. V. Mechau
		Satellites 1958 β 1 and 1958 β 2	B. Miller
		Satellites 1958 δ 2 and 1959 ι 1	Y. Kozai
		On the Orbital Elements of Satellite 1959 ι 1	Y. Kozai
52	November 21, 1960	*A Theory of Satellite Motion About an Oblate Planet: I. A Second-Order Solution of Vinti's Dynamical Problem	I. G. Izsak
53	December 5, 1960	The Orbits and the Accelerations of Satellites 1959 α 1 and 1959 α 2	R. C. Nigam

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55 (C-19)	December 19, 1960	Catalogue of Satellite Observations: Satellites 1959 α 1, 1959 α 2, 1959 Eta, 1959 ι 1, for June 1-Aug. 31, 1960	D. V. Mechau
56	January 30, 1961	A Method of Analysis for Lens and Mirror Systems	R. J. Davis, S. E. Strom, and K. M. Strom
		A Determination of the Ellipticity of the Earth's Equator From the Motion of Two Satellites	I. G. Izsak
		Effects of Solar Radiation Pressure on the Motion of an Artificial Satellite	Y. Kozai
57 (C-20)	March 3, 1961	Catalogue of Satellite Observations: Satellites 1960 β 1 (carrier rocket Tiros I), for Apr. 1-June 1, 1960; 1960 β 2 (Tiros I), for Apr. 2-Aug. 31, 1960; 1960 γ 1 (carrier rocket, Transit 1B), for Apr. 13-June 3, 1960; 1960 γ 2 (Transit 1B) for Apr. 14-July 25, 1960	D. V. Mechau
58 (C-21)	March 3, 1961	Catalogue of Satellite Observations: Satellites 1960 ι 1 (Echo I), and 1960 ι 2 (carrier rocket, Echo I), for Aug. 12-Aug. 31, 1960	D. V. Mechau
59	March 3, 1961	The Positions of the Baker-Nunn Camera Stations	G. Veis
60	March 10, 1961	*The Effect of Radiation Pressure on the Secular Acceleration of Satellites	S. P. Wyatt
61	March 20, 1961	*Experimental and Theoretical Results on the Orbit of Echo I	P. E. Zadunaisky, I. I. Shapiro, and H. M. Jones
62	May 26, 1961	*The Atmospheric Drag of Artificial Satellites During the October 1960 and November 1960 Events	L. G. Jacchia
63	May 29, 1961	*Effect of the Diurnal Atmospheric Bulge on Satellite Accelerations	S. P. Wyatt
64	July 7, 1961	The Revised Orbit of Satellite 1958 Zeta	R. C. Nigam
65	July 14, 1961	Atmospheric Drag on Non-Spherical Artificial Satellites	P. E. Zadunaisky

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66 (C-22)	July 17, 1961	Catalogue of Satellite Observations: Satellites 1958 Alpha (Explorer I), 1958 β 1 (carrier rocket, Vanguard I), 1958 Epsilon (Explorer IV), 1959 α 1 (Vanguard II), 1959 α 2 (carrier rocket, Vanguard II), 1959 Eta (Vanguard III), and 1959 ι 1 (Explorer VII), for Sept. 1–Dec. 31, 1960	D. V. Mechau
67 (C-23)	July 17, 1961	Catalogue of Satellite Observations: Satellites 1960 ι 1 (Echo I), and 1960 ι 2 (carrier rocket, Echo I), for Sept. 1–Dec. 31, 1960	D. V. Mechau
68 (C-24)	July 17, 1961	Catalogue of Satellite Observations: Satellites 1960 β 1 (carrier rocket, Tiros I), for Sept. 14–21, 1960; 1960 β 2 (Tiros I), for Sept. 2–Oct. 15, 1960; 1960 γ 1 (carrier rocket, Transit 1B), for July 7–27, 1960; 1960 γ 2 (Transit 1B), for July 26–Nov. 7, 1960; 1960 η 1 (Transit 2A), for June 26–Dec. 29, 1960; 1960 η 2 (Greb), for June 22–Dec. 23, 1960; 1960 η 3 (carrier rocket, Transit 2A, Greb), for June 23–Dec. 31, 1960; 1960 ξ 1 (Explorer VIII), for Nov. 4–Dec. 30, 1960; 1960 ξ 2 (carrier rocket, Explorer VIII), for Nov. 19–Dec. 24, 1960; 1960 Omicron (Discoverer XVII), for Nov. 13–Dec. 31, 1960; and 1960 Sigma (Discoverer XVIII), for Dec. 8–31, 1960	D. V. Mechau
69	July 17, 1961	List of Coordinates of Stations Engaged in the Observation of Artificial Earth Satellites	D. V. Mechau
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76	October 2, 1961	*Effects of the Earth's Ionosphere on HF Radio Astronomy From Artificial Satellites	M. D. Grossi, K. M. Strom, and S. E. Strom
77	October 24, 1961	*Short-periodic Oscillations in the Drag of Satellite 1958 Alpha	L. G. Jacchia and J. W. Slowey
78	October 25, 1961	Satellite Orbital Data: Satellites 1958 Alpha, 1958 β 1 and 1959 ι 1, for May-Dec. 1960	D. V. Mechau B. Miller
79	October 30, 1961	*The Analysis of Gravity	H. Jeffreys
80	November 1, 1961	*The Stabilization of an Artificial Satellite at the Inferior Conjunction Point of the Earth-Moon System	G. Colombo
81	November 24, 1961	The Orbits of the Satellites 1959 α 1 and 1959 α 2 and the Perturbations on the Perigee Distance of 1959 α 1	R. C. Nigam
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85 (P-2)	February 12, 1962	Catalog of Precisely Reduced Observations: Satellites 1959 α 1, for July 1-Dec. 31, 1959; 1959 α 2, for Mar. 6-May 31, 1959; 1960 ι 2, for Sept. 10-Dec. 31, 1960; 1960 Omicron, for Nov. 13-Nov. 16, 1960; and 1960 Sigma, for Dec. 8-Dec. 10, 1960	G. Veis
86	February 21, 1962	Satellite Orbital Data Satellites 1958 Alpha, for Jan. 1-July 1, 1961; 1958 β 1, for Jan. 1-July 27, 1961; 1960 ξ 1, for Nov. 4, 1960-July 3, 1961; 1961 δ 1, for Feb. 16-July 2, 1961; and 1961 ν 1, for April 28-Sept. 1, 1961 Satellite 1959 ι 1, for Dec. 31, 1960-July 1, 1961	I. G. Izsak B. Miller J. Weingarten

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87 (C-25)	February 23, 1962	Catalogue of Satellite Observations: Satellites 1958 Alpha (Explorer I), 1958 β 1 (carrier rocket, Vanguard I), 1959 α 1 (Vanguard II), 1959 α 2 (carrier rocket, Vanguard II), 1959 Eta (Vanguard III), and 1959 ι 1 (Explorer VII), for Jan. 1–June 30, 1961	D. V. Mechau
88 (C-26)	February 23, 1962	Catalogue of Satellite Observations: Satellites 1960 ι 1 (Echo I) and 1960 ι 2 (carrier rocket, Echo I), for Jan. 1–June 30, 1961	D. V. Mechau
89 (C-27)	February 23, 1962	Catalogue of Satellite Observations: Satellites 1960 ξ 1 (Explorer VIII), for Nov. 3, 1960–June 30, 1961; 1961 δ 1 (Explorer IX), for Feb. 16–June 30, 1961; and 1961 ν 1 (Explorer XI), for April 27–June 30, 1961	D. V. Mechau
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93	May 4, 1962	Satellite Orbital Data Satellite 1958 Alpha, for July 1, 1961–Jan. 1, 1962 Satellite 1959 ι 1, for July 1, 1961–Jan. 1, 1962 Satellite 1960 ξ 1, for July 1, 1961–Jan. 1, 1962 Satellite 1961 δ 1, for July 2, 1961–Jan. 5, 1962	I. G. Izsak B. Miller M. Gutierrez M. Hall J. Weingarten

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94	May 23, 1962	On the Motion of Explorer XI Around its Center of Mass	G. Colombo
95 (P-4)	June 18, 1962	Catalog of Precisely Reduced Observations: Satellites 1959 Eta, for July 1-Dec. 31, 1960; and 1960 ι_2 , for Jan. 1-June 30, 1961	K. Haramundanis
96 (C-28)	June 25, 1962	Catalogue of Satellite Observations: Satellites 1958 Alpha (Explorer I), 1959 α_1 (Vanguard II), 1959 Eta (Vanguard III), and 1959 ι_1 (Explorer VII), for July 1-Dec. 31, 1961; and 1959 α_2 (carrier rocket, Vanguard II), for July 1-27, 1961	B. Miller
97 (C-29)	June 25, 1962	Catalogue of Satellite Observations: Satellites 1960 ι_1 (Echo I) and 1960 ι_2 (carrier rocket, Echo I), for July 1-Dec. 31, 1961	B. Miller
98 (C-30)	June 25, 1962	Catalogue of Satellite Observations: Satellites 1960 ξ_1 (Explorer VIII) and 1961 δ_1 (Explorer IX), for July 1-Dec. 31, 1961; 1961 ν_1 (Explorer XI), for July 1-Sept. 28, 1961; and 1961 \omicron_1 (Transit 4a) and 1962 \omicron_2 (Injun Solar Radiation), for June 29-Dec. 31, 1961	B. Miller
99	July 16, 1962	Chemical Analysis of 643 Particles Collected by High-Altitude Aircraft and Balloons	F. B. Riggs, Jr., F. W. Wright, and P. W. Hodge
100	July 30, 1962	Accurate Drag Determinations for Eight Artificial Satellites; Atmospheric Densities and Temperatures	L. G. Jacchia and J. W. Slowey
101	July 31, 1962	Numerical Results from Orbits	Y. Kozai
102 (P-5)	August 27, 1962	Catalog of Precisely Reduced Observations: Satellite 1959 α_1 for the Entire Year 1960	J. MacDonald, K. Haramundanis et al.
103	August 28, 1962	Satellite Orbital Data Satellite 1959 Eta (Vanguard III), Sept. 1, 1960-Dec. 31, 1961 Satellite 1960 ι_1 (Echo I), Jan. 1-Dec. 31, 1961	I. G. Izsak B. Miller B. Miller
104 (P-6)	September 10, 1962	Catalog of Precisely Reduced Observations: Satellite 1961 δ_1 from Launch Feb. 16-June 30, 1961	J. MacDonald et al.
105	September 28, 1962	The Trajectory of Tektites	G. S. Hawkins and S. K. Rosenthal
106 (P-7)	November 1, 1962	Catalog of Precisely Reduced Observations: Satellite 1959 α_1 From Jan. 1-June 30, 1961; Satellite 1959 η_1 from Jan. 1-June 30, 1961	P. Stern

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107	November 9, 1962	On Some Singular Orbits of an Earth-Moon Satellite with a High Area-Mass Ratio	G. Colombo and D. A. Lautman
108	November 20, 1962	On the Libration Orbits of a Particle Near the Triangular Point in the Semirestricted Three-Body Problem	G. Colombo, D. Lautman, and C. Munford
109	December 21, 1962	Re-Entry and Recovery of Fragments of Satellite 1960 ϵ 1	C. A. Lundquist, R. C. Vanderburgh, W. A. Munn, D. Tilles, E. L. Fireman, and J. DeFelice
110	December 14, 1962	Project Celescope, an Astrophysical Reconnaissance Satellite	R. J. Davis, ed.
111	December 15, 1962	Possible Contributions of Space Experiments to Cometary Physics	P. Swings
112	January 21, 1963	On the Secular Decrease in the Inclination of Artificial Satellites	R. C. Nigam
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