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FOREWORD

This directory lists research publications produced by the Naval Environmental Prediction Research Facility (NEPRF) since the command was established in 1971. Abstracts of the last calendar year's publications also are provided.

The following identification information is given:

- (1) Report number assigned by NEPRF;
- (2) Government accession (AD) number where assigned;
- (3) Date of publication;
- (4) The publication's title, author(s), and number of pages

Publications are listed in sequence by type (see key to letter prefixes on first page of listings), report number, and year published.

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This tenth edition of January 1989 incorporates
and supersedes all previous listings/editions.

Report Number	AD Number	Report Date	Title -- Author(s) -- Pages
TP 1-71	739-702	Dec 1971	Large-Scale 'Turnover' in the Oceans -- S. Larsen, D. Dale, T. Laevastu -- 36 pp
TP 1-72	739-364	Jan 1972	A Summary of the U.S. Navy Program and FY 1971 Progress in Weather Modification and Control -- Environmental Prediction Research Facility -- 72 pp
TP 2-72	738-847	Jan 1972	The Effects of Oceanic Fronts on Properties of the Atmospheric Boundary Layer -- T. Laevastu, K. Rabe, G. Hamilton -- 54 pp
TP 3-72*	745-759	Mar 1972	A Description of the EPRF Hydrodynamic-al/Numerical Model -- T. Laevastu, K. Rabe -- 58 pp
TP 3A-72	745-760	Mar 1972	Appendices to ENVPREDRSCHFAC Technical Paper No. 3-72 Entitled A Description of the EPRF Hydrodynamical-Numerical Model -- Environmental Prediction Research Facility -- 34 pp
TP 4-72	746-451	Jul 1972	Numerical Modeling of the Growth of Ice Crystals, Graupel, and Hail -- E. Hindman, D. Johnson -- 56 pp
TP 5-72	746-130	May 1972	Geographic and Monthly Variation of Rapid Intensification and Low-Latitude Weakening of Tropical Cyclones of the Western North Pacific Ocean -- S. Brand -- 36 pp
TP 6-72	746-131	May 1972	Changes in the Characteristics of Typhoons Crossing the Philippines -- S. Brand, J. Blelloch -- 38 pp
TP 7-72*	746-880	Jul 1972	Speed of Tropical Storms and Typhoons After Recurvature in the Western North Pacific Ocean -- L. Burroughs, S. Brand -- 43 pp

Listed publications are identified by the following letter prefixes:

AR -- Applications Report
 CPN -- Computer Programming Note
 CR -- (NEPRF) Contractor Report
 TM -- Technical Memorandum

TN -- Technical Note
 TP -- Technical Paper
 TR -- Technical Report

* Indicates Out of Print

Report Number	AD Number	Report Date	Title -- Author(s) -- Pages
TP 8-72	751-579	Jun 1972	The Mean Winds of the Upper Troposphere Over the Central and Eastern Pacific -- J. Sadler -- 29 pp
TP 9-72*	522-652L	Sep 1972	The Validity of Forecasts of Ballistic Wind and Density for Fleet Ballistic Missile Systems, 1971-1972 Spring, Fall and Winter Case Studies: Eurasia and Eastern Test Range -- D. Schertz, P. Lowe -- 81 pp
TP 10-72	761-620	Sep 1972	A Numerical Study in Optimum Track Ship Routing Climatology -- F. Nagle -- 174 pp
TP 11-72*	524-343L	Dec 1972	The Effects of Subthermocline Ducts on the Propagation of Sound -- T. Laevastu, P. Wolff -- 50 pp
TP 12-72	907-418	Dec 1972	Monsoon Meteorology, by Colin S. Ramage; A Digest for Africa and Adjoining Indian Ocean Waters -- L. Brody -- 80 pp
TP 13-72*	757-328	Oct 1972	A Study of Numerical Simulation of Maritime Fog -- D. Feit -- 46 pp
TN 1*	---	Apr 1972	Computation of Flushing and Other Pollution Problems in Pearl Harbor with Hydrodynamical-Numerical (HN) Models -- Environmental Prediction Research Facility -- 21 pp
TN 2	776-231	Apr 1972	Coastal Sea-Air Interactions and the Extent of Coastal Influence -- Environmental Prediction Research Facility -- 26 pp
TN 3	776-226	Apr 1972	A Description of Linear and Nonlinear Computational Instability -- D. Haney -- 11 pp
TN 4	776-227	Jun 1972	Estimating Wind Speed Changes at Land/Sea Boundaries -- R. Cormier -- 10 pp
TN 5	776-228	Jun 1972	Visibility Calculations for Microphysical Computer Models -- D. Johnson -- 29 pp
TN 6	776-229	Jul 1972	A Bibliography of Selected Publications on Mediterranean Meteorology -- O. Haney -- 33 pp

Report Number	AD Number	Report Date	Title -- Author(s) -- Pages
CPN 1	A-011-119	Jan 1972	NODCXBT Subroutine for CDC 1604 -- K. Rabe -- 6 pp
CPN 2	A-012-938	Jan 1972	NODCBCD Subroutine for CDC 1604 -- K. Rabe -- 5 pp
CPN 3	A-011-409	Jan 1972	Basic Zoom Program - Extraction of a Portion of Hemispheric Analyses and Interpolation to a New Grid of Desired Size, Location, and Orientation -- G. Wiese -- 32 pp
CPN 4	A-011-410	Sep 1972	STATPROG Subroutines for CDC 1604 -- C. Simpson -- 22 pp
TR B2-0272-001 (CSU) *	741-717	Feb 1972	Diagnostic Study of the Planetary Boundary over the Oceans -- W. Gray (Colorado State University) -- 99 pp
TR S1-0972-002 (SRI)	757-814	Sep 1972	Further Development of Objective Methods for Registering Landmarks and Determining Cloud Motions from Satellite Data -- D. Wolf, R. Endlich, D. Hall (Stanford Research Institute) -- 82 pp
TP 1-73	758-007	Jan 1973	The 1972 Typhoon Analog Program (TYFOON-72) J. Jarrell, R. Wagoner -- 44 pp
TP 2-73	764-859	Mar 1973	Tropical Cyclones of the North Indian Ocean -- J. Sadler, R. Gidley -- 62 pp
TP 3-73	766-797	Mar 1973	The Low-Level Structure of Weak Tropical Waves - A Preliminary Report -- R. Fett, R. Nagle, W. Mitchell -- 26 pp
TP 4-73	767-031	Jun 1973	The Typhoons of October 1970 in the South China Sea: Intensification, Decay and Ocean Interaction -- C. Ramage -- 49 pp
TP 5-73	767-030	Jun 1973	State of the Sea Around Tropical Cyclones in the Western North Pacific Ocean -- S. Brand, J. Blelloch, D. Schertz -- 32 pp
TP 6-73	767-934	Sep 1973	Oceanic Fog--A Numerical Study -- E. Barker -- 74 pp
TP 7-73*	771-379	Sep 1973	Handbook for Forecasters in the Bay of Bengal -- M. Cuming -- 170 pp

Report Number	AD Number	Report Date	Title -- Author(s) -- Pages
TP 8-73	769-538	Oct 1973	Changes in the Characteristics of Typhoons Crossing the Island of Taiwan -- S. Brand, J. Blelloch -- 21 pp
TP 9-73	776-232	Dec 1973	The Evaluation of Hong Kong Harbor as a Typhoon Haven -- D. Mautner, S. Brand -- 130 pp
TP 10-73	775-616	Dec 1973	Potential Cumulus Rainfall Modification -- Panama Canal Zone -- P. Lowe -- 18 pp
TN 7	772-085	Sep 1973	Computation of Tidal Currents in the Vicinity of S. Stefano Island -- K. Rabe -- 24 pp
TN 8	772-093	Nov 1973	Coastal Sea-Air Interactions and the Extent of Coastal Influence -- T. Laevastu -- 32 pp
TN 9	772-094	Nov 1973	A Model of Circulation and Dispersion in Pearl Harbor -- S. Larson -- 32 pp
CPN 5	A-011-411	Jan 1973	Mediterranean Sea-Surface Temperature Analysis Program - MEDSST -- A. Anderson, S. Larson, L. I'Anson -- 121 pp
CPN 6	A-011-412	Jan 1973	Program BTREPORT -- A. Anderson, S. Larson -- 80 pp
CPN 7	A-011-413	Feb 1973	Mediterranean Mixed Layer Depth Analysis Program - MEDMLD -- A. Anderson -- 62 pp
CPN 8	A-011-414	Feb 1973	The WAVE32 Program -- S. Larson, A. Anderson -- 59 pp
CPN 9	A-011-415	Feb 1973	The MLDZOOM Program -- S. Larson, A. Anderson -- 34 pp
CPN 10	A-035-170	Jul 1973	Ocean Climatology Extraction and Adjustment Program for the Mediterranean Program SOVEL -- T. Laevastu -- 22 pp
CPN 11	A-011-416	Nov 1973	Program GRAPHIC -- C. Simpson, D. Johnson -- 36 pp
CPN 12	A-011-417	Dec 1973	Subroutine SKEWTLF -- J. Ficke -- 12 pp

Report Number	AD Number	Report Date	Title -- Author(s) -- Pages
TR S1-0673-003 (ESC) *	767-026	May 1973	Satellite Observations of Anomalous Local Wind Events in the Mediterranean Region -- J. Meneely, E. Merritt (Earth Satellite Corporation) -- 138 pp
TRS1-0873-004 (ESC)	770-208	Aug 1973	The NIMBUS 5 ESMR and its Application Storm Detection -- R. Sabatini, E. Merritt (Earth Satellite Corporation) -- 51 pp
TR 1-73 (ODSI)	770-207	Sep 1973	Extending the Computerized Typhoon/Tropical Storm Prediction Program (Typhoon 72) Toward Seven Days -- (Ocean Data Systems, Inc.) -- 115 pp
TR 2-73 (CSC)	773-964	Nov 1973	Organizational Structures for Constant Resolution Earth Data Bases -- P. Beaudet, F. Chan, L. Goldshlak (Computer Sciences Corporation) -- 190 pp
TR 3-73 (ARA)	774-524	Sep 1973	Development of Digital Enhancement Techniques Applicable to Direct Readout (APT) Meteorological Satellite Images -- I. Tamches, N. Kelknap (Applied Research Associates, Inc.) -- 123 pp
TP 1-74	774-683	Jan 1974	Tropical Cyclone Movement Forecasts Based on Observations from Satellites -- R. Fett, S. Brand -- 70 pp
TP 2-74	777-429	Mar 1974	Using Helicopters to Clear Fog: A Numerical Study -- D. Johnson, E. Barker, P. Lowe -- 38 pp
TP 3-74	777-958	Feb 1974	A Numerical Simulation of Warm Fog Dissipation by Electrically Enhanced Coalescence -- P. Tag -- 51 pp
TP 4-74	778-316	Mar 1974	The Computation of Saturation Vapor Pressure -- P. Lowe, J. Ficke -- 27 pp
TP 5-74*	777-406	Mar 1974	A Three-Parameter Model for Limited Area Forecasting -- L. Bengtsson -- 112 pp
TP 6-74	A-000-267	Apr 1974	An Evaluation of the Harbors of Kaohsiung and Chilung (Keelung), Taiwan as Typhoon Havens -- M. Brown -- 108 pp

Report Number	AD Number	Report Date	Title -- Author(s) -- Pages
TP 7-74	781-259	May 1974	A Numerical Study of Clearing Warm Fog by Using Hygroscopic Seeding in Conjunction with Helicopter Downwash -- P. Tag -- 40 pp
TP 8-74	781-324	May 1974	Cost Effectiveness of Typhoon Forecasts Improvements -- S. Brand, J. Blelloch -- 31 pp
TP 9-74	782-364	May 1974	A Role of the Tropical Upper Tropospheric Trough in Early Season Typhoon Development -- J. Sadler (University of Hawaii) -- 54 pp
TP 10-74	785-245	Jul 1974	Computation of Real-Time Currents off Southern California with Multi-Layer Hydrodynamical-Numerical Models -- T. Laevastu, G. Hamilton -- 72 pp
TP 11-74	786-347	Aug 1974	A Tropical Cyclone Analog Program for the North Indian Ocean -- S. Brand, J. Long, J. Blelloch, G. Hamilton -- 20 pp
TP 12-74	A-000-088	Aug 1974	Monsoonal Influences on the Annual Variation of Tropical Cyclone Development -- C. Ramage (University of Hawaii) -- 34 pp
TP 13-74	786-699	Aug 1974	The Effect of Utilizing Empirically Derived Values of Coalescence Efficiency in a Microphysical Cloud Model -- P. Tag -- 38 pp
TP 14-74	787-481	Sep 1974	Mesoscale Feedback from the Ocean to the Atmosphere in Coastal and Oceanic Frontal Regions -- T. Laevastu, G. Hamilton -- 46 pp
TP 15-74	A-004-620	Oct 1974	Description of the Optimized EPRF Multi-Layer Hydrodynamical-Numerical Model -- R. Bauer -- 66 pp
TP 16-74	A-001-271	Oct 1974	A Tropical Cyclone Analog Program for the Southwest Indian Ocean -- S. Brand, J. Blelloch, J. Long -- 20 pp
TN 10	778-609	Jan 1974	A Vertically Integrated Hydrodynamical/Numerical Model (W. Hansen Type): Model Description and Operating/Running Instruction -- Environmental Prediction Research Facility -- 69 pp

Report Number	AD Number	Report Date	Title -- Author(s) -- Pages
TN 11	778-619	Jan 1974	A Multilayer Hydrodynamical-Numerical Model (W. Hansen): Model Description and Operating/Running Instructions -- T. Laevastu -- 60 pp
TN 12	778-610	Jan 1974	Computation of Tides, Currents and Dispersal of Pollutants in Lower Bay and Approaches to New York with Fine and Medium Grid Size Hydrodynamical-Numerical Models -- T. Laevastu, M. Clancy, A. Stroud -- 57 pp
TN 13	778-617	Jan 1974	Computation of Tides, Currents and Dispersal of Pollutants in the New York Bight from Block Island to Atlantic City with Large Grid Size, Single and Two-Layer Hydrodynamical-Numerical Models -- T. Laevastu, R. Callaway A. Stroud, M Clancy -- 84 pp
TN 14	777-048	Mar 1974	Summaries and Abstracts of Tropical Publications of the Navy Weather Research Facility and Environmental Prediction Research Facility, 1968 to Feb 1974 -- Environmental Prediction Research Facility -- 20 pp
TN 15	778-618	Mar 1974	Typhoon and Tropical Storm Intensity Forecasts for 24, 48 and 72 Hour Using Statistical Regression Equations -- R. Elsberry, G. Coltrane, P. Krueger -- 26 pp
TN 16	779-005	Apr 1974	A Fine Mesh Sea-Level Pressure Analysis Scheme Incorporating Effects of Elevation and Terrain -- L. Brody -- 31 pp
CPN 13	A-035-169	Mar 1974	Users Guide to UPDATE -- J. Long -- 16 pp
CPN 14	787-480	Sep 1974	Users Guide for Direct Readout Data Converter (DRDC) -- G. Hunolt -- 127 pp
CPN 15	A-005-310	Sep 1974	Program COATEM -- B. van der Bijl (Compass Systems, Inc.) -- 17 pp
CPN 16	A-005-311	Sep 1974	Program TRUWIND -- B. van der Bijl (Compass Systems, Inc.) -- 7 pp
CPN 17	A-005-312	Sep 1974	Program ROGMAP -- R. Bauer, B. van der Bijl (Compass Systems, Inc.) -- 20 pp

Report Number	AD Number	Report Date	Title -- Author(s) -- Pages
CPN 18	A-005-321	Sep 1974	A Ray Trace Program Package for the CDC 1604 Computer -- B. van der Bijl (Compass Systems, Inc.) -- 36 pp
CPN 19	A-005-322	Oct 1974	Program PLOTS (HN Model Pen Plots) -- R. Bauer, B. van der Bijl (Compass Systems, Inc.) -- 50 pp
TR 1-74 (ERT) *	A-001-300	Jan 1974	Oceanographic Studies Using Satellite Data: Detection of Near-Shore Phenomena in ERTS Imagery -- C. Bowley, J. Barnes (Environmental Research & Technology, Inc.) -- 121 pp
TR 2-74 (SRI)	779-331	Nov 1973	Objective Methods for Determining Cloud Motions from Satellite Data -- D. Hall, F. Tomlin, D. Wolf (Stanford Research Institute) -- 45 pp
TR 3-74 (ODSI) *	780-423	Apr 1974	Survey of Pacific Theatre Satellite Data Users -- W. Hubert (Ocean Data Systems, Inc.) -- 100 pp
TR 4-74 (CDC) *	780-772	Mar 1974	Objective Methods for Locating the Center of Tropical Storms -- D. Dartt, M. Ulstad, R. Weinberg (Control Data Corporation) -- 16 pp
TR 5-74	783-547	May 1974	The Application of the NIMBUS 5 ESMR to Sea Surface Wind Determination -- R. Sabatini (Earth Satellite Corporation) -- 80 pp
TR 6-74 (ERT) *	A-001-092	Jun 1974	Mapping of Sea Surface Temperature by the NOAA-2 Satellite -- J. Cogan, J. Willand (Environmental Research & Technology, Inc.) -- 72 pp
TR 7-74 (ODSI)	787-021	Jul 1974	Survey of Atlantic Theatre Satellite Data Users -- W. Hubert (Ocean Data Systems, Inc.) -- 112 pp
TP 1-75	A-008-346	Jan 1975	Preliminary Investigation of the Monthly and Seasonal Variation of Total Mass of the Atmosphere of the Northern Hemisphere and its Possible Use as a Partial Measure of Water Vapor Content Change of the Atmosphere -- W. Rudloff, T. Laevastu, J. Harding, S. Larson, G. Britton -- 17 pp

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TP 2-75	A-006-255	Jan 1975	An Investigation of Interactions Between Double Clouds Using a Two-Dimensional Numerical Model -- W. Sweet, P. Lowe -- 110 pp
TP 3-75	A-007-301	Feb 1975	Summary Report of Hydrodynamical-Numerical (HN) Model Workshop and AGU Topical Meeting: Hydrodynamical-Numerical Models for Coastal and Open Ocean Areas -- T. Laevastu -- 93 pp
TP 4-75	A-008-158	Mar 1975	A Maritime Boundary Layer Model for the Prediction of Fog -- E. Barker -- 51 pp
TP 5-75	A-024-271	Nov 1975	Handbook for Forecasters in the Mediterranean Weather Phenomena of the Mediterranean Basin; Part 1: General Description of the Meteorological Processes -- E. Reiter -- 344 pp
TP 6-75	A-009-530	Mar 1975	The Navy's Analog Scheme for Forecasting Tropical Cyclone Motion over the Northeastern Pacific Ocean -- J. Jarrell , C. Mauck, R. Renard -- 27 pp
TP 7-75	A-010-792	Mar 1975	Monthly Mean Evaporation and Surface Winds over the Northern Hemisphere Oceans and Their Year-To-Year Variations -- S. Larson, T. Laevastu -- 50 pp
TP 8-75	A-010-122	Mar 1975	A 26-Year Time Series of Monthly Mean Winds Over the Oceans: Part 1 - A Statistical Verification of Computed Surface Winds Over the North Pacific and North Atlantic -- S. Larson -- 89 pp
TP 9-75	A-011-817	May 1975	A Statistical and Spectral Analysis of the Air-Sea Interactions at OWS NOVEMBER -- K. Rabe, R. Bourke -- 89 pp
TP 10-75	A-010-123	Apr 1975	A 26 Year Time Series of Monthly Mean Winds Over the Ocean: Part II - Monthly Anomalies at Selected Points in the North Pacific -- S. Larson -- 104 pp

Report Number	AD Number	Report Date	Title -- Author(s) -- Pages
TP 11-75	---	---	Unpublished
TP 12-75	A-012-369	Apr 1975	Further Development of a 3-7 Day Typhoon Analog Forecast Model for the Western Pacific -- W. Yogi, J. Long, J. Steuckert (Ocean Data Systems, Inc.) -- 37 pp
TP 13-75	A-010-121	May 1975	An Evaluation of the Harbors of Subic Bay and Manila, Republic of the Philippines, as Typhoon Havens -- J. Douglass -- 115 pp
TP 14-75	A-011-818	May 1975	Classification and Analysis/Forecasting of Near-Surface Ocean Thermal Structure -- T. Laevastu -- 34 pp
TP 15-75	A-012-348	Jun 1975	An Evaluation of the Harbor of Yokosuka, Japan as a Typhoon Haven -- R. Graff -- 100 pp
TP 16-75	A-011-057	Mar 1975	Tropical Cyclone Genesis in the Western North Pacific -- W. Gray (Colorado State Univ.) -- 66 pp
TP 17-75	A-014-100	Jul 1975	An Evaluation of Sasebo Harbor, Japan as a Typhoon Haven -- D. Rudolph -- 115 pp
TP 18-75	A-020-304	Oct 1975	Island Barrier Effects on Sea State and Atmospheric Moisture as Detected by a Numerical Wave Model and Sensors of the Defense Meteorological Satellite Program (DMSP) -- R. Fett, K. Rabe -- 67 pp
TP 19-75	A-018-847	Nov 1975	An Evaluation of Apra Harbor, Guam as a Typhoon Haven -- M. Brown, S. Brand -- 79 pp
TP 20-75	A-021-213	Nov 1975	Objective Analysis Technique in Sigma Coordinates -- D. Schiessl -- 152 pp
TP 21-75	A-025-087	Dec 1975	An Evaluation of the Harbors of Buckner Bay and Naha, Okinawa as Typhoon Havens -- D. Rudolph, F. Blake, S. Brand, J. Bluelloch -- 90 pp
TP 22-75	A-019-307	Dec 1975	An Evaluation of the Harbors of Inchon, Pusan and Chinhae, Republic of Korea, as Typhoon Havens -- D. Rudolph -- 130 pp

Report Number	AD Number	Report Date	Title -- Author(s) -- Pages
TP 23-75	A-019-312	Dec 1975	An Evaluation of the Harbors of Kwakuni and Kure, Japan as Typhoon Havens -- J. Manning -- 82 pp
TP 24-75	A-020-640	Dec 1975	An Evaluation of the Numazu Operating Area and Kagoshima Harbor, Japan as Typhoon Haven -- R. Wixom -- 125 pp
TN 17	A-008-156	Feb 1975	Surface Currents Deduced from Ship Drift at the Periphery of Costa Rica Dome -- T. Laevastu -- 7 pp
TN 18	A-010-234	Mar 1975	An Evaluation of Available Wave Refraction Models for Use on the CDC 3100 Computer -- K. Rabe -- 30 pp
TN 19	A-010-546	Apr 1975	Puerto Rico Operating Area Search and Rescue Program - USAR -- K. Rabe -- 60 pp
TN 20*	A-010-791	Apr 1975	Direct Solution of Elliptic Equations by Block Cyclic Reduction and Factorialization -- T. Rosmond, F. Faulkner -- 34 pp
TN 21	A-013-192	Jun 1975	NVA Upper Air Temperature and Wind Analysis for a 12-Level European Area Model -- A. Groll -- 53 pp
TN 22*	A-014-083	Aug 1975	Interrelationships between Tropical North Pacific Atmospheric Circulation, Explosive Volcanism, Sea Surface Temperature and Western North Pacific Tropical Storms and Typhoons -- J. Harding, S. Larson -- 25 pp
TN 23	---	---	Unpublished
CPN 20	A-020-045	May 1975	A Cloud Advection Model -- R. Nagle -- 113 pp
CPN 21	A-008-841	Mar 1975	The Delaware-Dobson Wave Refraction Model -- K. Rabe -- 47 pp
CPN 22	A-013-191	Mar 1975	Subroutines for Direct Solution of Three-Dimensional Elliptic Equations -- T. Rosmond -- 39 pp
CPN 23*	A-013-190	Apr 1975	Subroutines for the Direct Solution of Two-Dimensional Elliptic Equations -- T. Rosmond -- 32 pp

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TR 1-75	---	---	Unpublished
TR 2-75 (CSC)	A-010-232	Apr 1975	Feasibility Study of a Quadrilateralized Spherical Cube Earth Data Base -- F. Chan, E. O'Neill (Computer Sciences Corporation) -- 114 pp
TR 3-75 (ESC)	A-010-541	Feb 1975	Sea Surface Wind Speed Estimates from the NIMBUS 5 ESMR -- R. Sabatini (Earth Satellite Corporation) -- 55 pp
TR 4-75*	---	Feb 1975	Techniques for Processing VTPR Side-Scan Radiances Including Diagnosis for the Clear-Column Radiance Components -- M. Holl (Meteorology International Incorporated) -- 93 pp plus Appendix A
TR 5-75* (UD)	A-014-320	May 1975	Interpretation of Structures Over Oceanic Regions in DMSP Data -- K. Szekiolda (University of Delaware) -- 41 pp
TR 6-75 (ESC)	A-009-850	Apr 1975	Applications of the NIMBUS 5 ESMR to Rainfall Detection Over the Oceans and to Sea-Ice Detection -- R. Sabatini, D. Hlavka, R. Arcese (Earth Satellite Corporation) -- 77 pp
TR 7-75*	A-014-427	May 1975	Mapping of Sea Surface Temperature by the DMSP Satellite -- J. Cogan, J. Willand (Environmental Research & Technology, Inc.) -- 82 pp
TR 8-75 (SRI)	A-021-173	Oct 1975	Correlation of Cloud Brightness and Radiance with Precipitation Intensity -- R. Blackmer (Stanford Research Institute) -- 134 pp
TR 9-75 (SRI)	A-021-772	Oct 1975	Implementation of the SRI Objective Cloud Tracking System at EPRF -- D. Hall, D. Wolf (Stanford Research Institute) -- 62 pp
TR 10-75 (SRI)	A-020-689	Oct 1975	Use of Infrared Radiance Measurements in Dynamic Analysis -- P. Davis (Stanford Research Institute) -- 76 pp

Report Number	AD Number	Report Date	Title -- Author(s) -- Pages
TR 11-75*	A-022-650	Oct 1975	Objective Tropical Storm Parameters from Satellite Cloud Patterns -- D. Dartt (Control Data Corporation) -- 23 pp + Figures
TR 12-75 (MII)	A-023-908	Dec 1975	Tests and Evaluations of CLRX, the Diagnosis of Clear Column Radiances -- M. Holl (Meteorology International Incorporated) -- 109 pp
TR 13-75* (ODSI)	A-024-736	Nov 1975	Data Assimilation Restorative-Iterative Model (RIMOD) -- P. Kesel, R. Welck (Ocean Data Systems, Inc.) -- 154 pp
TP 1-76	A-023-676	Mar 1976	A Tropical Cyclone Analog Program for the Southwest Pacific Ocean and Australian Region -- S. Brand, J. Blelloch -- 23 pp
TP 2-76	A-025-456	Feb 1976	Tropical Cyclone Initiation by the Tropical Upper Tropospheric Trough -- J. Sadler (University of Hawaii) -- 104 pp
TP 3-76	A-027-533	May 1976	An Evaluation of the Harbor of Cebu, Republic of the Philippines, as a Typhoon Haven -- B. Hassell -- 74 pp
TP 4-76	A-027-532	May 1976	Cross-Equatorial Interactions in the Development of a Winter Typhoon: Nancy 1970 -- C. Guard (University of Hawaii) -- 46 pp
TP 5-76	A-034-188	Jun 1976	Typhoon Havens Handbook for the Western Pacific and Indian Oceans -- S. Brand, J. Blelloch -- 256 pp
TP 6-76	A-027-410	May 1976	Clearing Fog by Seeding with Charged Water Drops: A Numerical Study -- P. Tag -- 49 pp
TP 7-76	A-031-174	Jul 1976	The Climatology and Forecasting of Eastern North Pacific Ocean Tropical Cyclones -- R. Renard, W. Bowman -- 79 pp
TP 8-76	A-029-717	Aug 1976	A Wind Wave Tropical Cyclone Model for the Western North Pacific Ocean -- S. Brand, K. Rabe, T. Laevastu -- 21 pp

Report Number	AD Number	Report Date	Title -- Author(s) -- Pages
TN 24	A-021-638	Feb 1976	A Generalized Version of the Fields by Information Blending (FIB) Technique -- B. Maxwell -- 86 pp
CPN 24	A-037-226	Jan 1976	Calibration, Earth Location and Mapping Programs for the NIMBUS-5 Electronically Scanning Microwave Radiometer (ESMR) -- R. Nagle -- 134 pp
TR 1-76 (SRI)	---	Dec 1975	Analysis of Radio-Radar Propagation Conditions Using Satellite-Viewed Cloud Cover and Rawinsonde Observations -- R. Blackmer (Stanford Research Institute) -- 62 pp
TR 2-76* (CDC)	A-027-412	Jan 1976	A Pilot Analysis of the Curvature of Extratropical Storms -- D. Dartt (Control Data Corporation) -- 21 pp + Figures
TR 3-76 (CSC)	A-026-294	May 1976	Extended Studies of a Quadrilateralized Spherical Cube Earth Data Base -- E. O'Neill, R. Laubscher (Computer Sciences Corporation) -- 114 pp
TR 4-76 (MII)	A-034-291	Jan 1976	Development of the Capability for Surface-Wind Analysis on a Portable Grid (FIB/UV-PORT) -- B. Mendenhall (Meteorology International Incorporated) -- 40 pp + Appendices A and B
TR 5-76*	---	Mar 1976	Program Development for Reduction of Meteorological Satellite Data to Vertical Temperature and Humidity Profiles -- (Ocean Data Systems, Inc.) -- I, 197 pp; II, 332 pp
TR 6-76 (ESC)	A-046-629	Sep 1976	A Preliminary Study of the Applicability of NIMBUS 6 ESMR to Sea-Surface Wind Speed Estimates -- R. Sabatini, L. Heitkemper, D. Hlavka (Earth Satellite Corporation) -- 45 pp
TR 7-76* (ERT)	---	Nov 1976	An Algorithm to Retrieve Water Vapor Information from Satellite Measurements -- R. Crane (Environmental Research & Technology, Inc.) -- 37 pp

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AR 77-01	A-046-542	Mar 1977	Meteorological Phenomena of the Arabian Sea -- L. Brody -- 196 pp
AR 77-02	A-046-589	May 1977	The Regeneration of South China Sea Tropical Cyclones in the Bay of Bengal -- J. Sadler, B. Kilonsky (University of Hawaii) -- 24 pp
AR 77-03	B-024-969	Jan 1977	Navy Tactical Applications Guide. Volume 1 Techniques and Applications of Image Analysis -- R. Fett, W. Mitchell -- 110 pp
TR 77-01*	A-048-168	Jul 1977	Tropical Cyclone Research by Data Compositing -- W. Gray, W. Frank (Colorado State University) -- 70 pp
TR 2-77*	---	Apr 1977	Development of a Synoptic Climatology of Tropospheric Refractive Conditions for the Eastern Pacific Ocean Off the West Coast of the United States Task One and Task Two -- P. Kalinyak (Meteorology International Incorporated) -- 174 pp
TR 77-03	A-055-162	Sep 1977	The Environment of South Korea and Adjacent Sea Areas -- M. Nestor -- 284 pp
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TR 88-02	A192699	Feb 1988	An Evaluation of Two Millimeter Wave Propagation Models for Horizontal Atmospheric Attenuation at 70-115 GHz -- G. Vogel -- 82 pp

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TR 88-03	B121875	Apr 1988	Comparison of Electro-Optical Ranges as Calculated from Model-Derived and Observed Data -- C. Sampson -- 37 pp. (Distribution authorized to U.S. Government agencies and their contractors only; critical technology; 28 Mar 1988. Other requests for this document shall be referred to Commanding Officer, Naval Environmental Prediction Research Facility, Monterey, CA 93943-5006.)
TR 88-04	--	Apr 1988	Parameterization of Horizontal Wind Velocity Variability -- LT T. Dowding, USN -- 128 pp
TR 88-05	--	Aug 1988	Meteorological Measurements During the Western Mediterranean Circulation Experiment - June 1986 -- J. Haggerty, R. Picard, R. Fett -- 236 pp
TR 88-06	--	Aug 1988	Severe Weather Guide, Mediterranean Ports: 22. Venice -- 57 pp
TR 88-07	--		23. Trieste -- 54 pp
TR 88-08	--		24. Cartagena -- 60 pp
TR 88-09	--		25. Valencia -- 60 pp
TR 88-10	--	Nov 1988	Climatology of North Pacific Tropical Cyclone Tracks -- R. Miller, T. Tsui, A. Schrader -- 514 pp
TR 88-11	--	Nov 1988	Icing Considerations for HALE (High Altitude, Long Endurance) Aircraft -- G. Vogel -- 55 pp
CR 88-01	A195632	Mar 1988	Passive Microwave Measurements of Water Vapor Fields and Rain for Locating Fronts in Cyclonic Storms -- K. Katsaros, I. Bhatti, L. McMurdie, G. Petty -- 50 pp

Report Number	AD Number	Report Date	Title -- Author(s) -- Pages
CR 88-02	A197802	Mar 88	Forecasting Aids for Setting Tropical Cyclone Conditions: Sasebo and Iwakuni, Japan -- J. Jarrell -- 46 pp
CR 88-03	A197945	Apr 1988	Aerosol Characteristics in the Marine Boundary Layer over the Straits of Gibraltar - June 1986 -- B. Wattle, C. Rogers -- 88 pp
			Severe Weather Guide, Mediterranean Ports:
CR 88-04	A198911	May 1988	16. Barcelona -- 74 pp
CR 88-05	A198912		17. Palma, Mallorca -- 63 pp
CR 88-06	A198913		18. Ibiza -- 71 pp
CR 88-07	A198914		19. Pollensa Bay -- 72 pp
CR 88-08	A198915		20. Livorno -- 73 pp
CR 88-09	A198909		21. La Spezia -- 61 pp
CR 88-10	--	Jun 1988	NOAA AVHRR Observations During the Marginal Ice Zone Experiment, Between Spitzbergen and Greenland, June 7 to July 18, 1984 -- O. Skagseth, K. Kloster, K. Barthel, O. Johannessen -- 137 pp
CR 88-11	--	Jun 1988	Forecasters Handbook for Japan and Adjacent Sea Areas -- R. Englebretson, R. Gilmore -- 659 pp. (Distribution authorized to U.S. Government agencies and their contractors only; administrative or operational use; 16 June 1988. Other requests for this document shall be referred to Commander, Naval Oceanography Command.
CR 88-12	--	Aug 1988	Program Performance Specification for North Atlantic Fog Forecasting -- C. Rogers -- 29 pp

ABSTRACTS OF 1988 PUBLICATIONS

Naval Environmental Prediction Research Facility
Monterey, CA 93943-5006

TR 88-01, January 1988: The Effects of Better Environmental Inputs in Estimating Sea Clutter -- T. Cheung -- 27 pp.

Microwave radars deployed near the marine environment, e.g., shipboard and airborne radars, are subjected to sea return or sea clutter. In many instances, sea return for radars at large angles of incidence or small grazing angles (less than 15°) is of special importance.

This study examines the effects of better environmental inputs to an existing sea clutter model that has proven to be adequate for small grazing angles. Limitations in the existing model are described, improvements are suggested, and plans for improving the model are outlined and discussed.

TR 88-02, February 1988: An Evaluation of Two Millimeter Wave Propagation Models for Horizontal Atmospheric Attenuation at 70-115 GHz -- G. Vogel -- 82 pp.

An evaluation is performed for two millimeter wave propagation models: the LIEBE model, developed at the Institute for Telecommunications, Boulder, CO, under the guidance of Dr. H. Liebe; and the EOSAEL model, developed at the US Army Atmospheric Laboratory at White Sands Missile Range, NM. This evaluation is conducted for horizontal attenuation due to both clear atmosphere and hydrometeor effects under typical surface meteorological conditions, and within the frequency range 70-115 GHz. Intercomparisons of model theories and predictions show slight differences for molecular oxygen and fog attenuations, but significant differences for water vapor and rain attenuations. Results indicate that while the qualitative agreement between either the EOSAEL or LIEBE model predictions and measurements for horizontal attenuation due to oxygen, water vapor, fog and rain is certainly satisfactory, there is a definite need for improvement. Overall, no clear preference for either the EOSAEL or LIEBE model for operational use is ascertained. Data comparisons suggest that, for several attenuation types, model preference is dependent on either the frequency or meteorological conditions.

TR 88-03, April 1988: Comparison of Electro-Optical Ranges as Calculated from Model-Derived and Observed Data -- C. Sampson -- 37 pp. (Distribution authorized to U.S. Government agencies and their contractors only; see listing on p. 33.)

(Abstract: same distribution as report)

TR 88-04, April 1988: Parameterization of Horizontal Wind Velocity Variability -- T. Dowding -- 128 pp

Longitudinal and transverse horizontal wind velocity variability is parameterized based on data collected for the Bureau of Land Management (BLM) between 1980 and 1982. The BLM data sets were used to derive horizontal wind velocity components and standard deviations of these components in the longitudinal (downwind; u, σ_u) and transverse (crosswind; v, σ_v) directions for various time averages. The standard deviations were plotted versus wind speed so that trends in the change of values could be determined. A methodology was used to develop a theoretical algorithm to account for turbulence production mechanisms due to shear, buoyancy and mesoscale processes. Empirical fits were determined for both the u and v wind directions over four different time averages. The results were related to puff growth in the x, y directions and form the basis for improving a puff dispersion model for near-coast overwater regions.

TR 88-05, August 1988: Meteorological Measurements During the Western Mediterranean Circulation Experiment - June 1986 -- J. Haggerty, R. Picard, R. Fett -- 236 pp.

An experiment to collect meteorological and atmospheric aerosol data in the western portion of the Mediterranean Sea is described. Measurements were taken on three cruises during May and June 1986. Experimental procedures are explained, atmospheric conditions during the cruises are reviewed, and meteorological data from each cruise are provided.

TR 88-06 through -09: Severe Weather Guide, Mediterranean Ports -- four additional port studies publications in the series to date, as follows:

- 22. Venice -- 57 pp (TR 88-06)
- 23. Trieste -- 54 pp (TR 88-07)
- 24. Cartagena -- 60 pp (TR 88-08)
- 25. Valencia -- 60 pp (TR 88-09)

(See Common Abstract, next page)

Common Abstract:

This handbook for the port of (name of port), one in a series of severe weather guides for Mediterranean ports, provides decision-making guidance for ship captains whose vessels are threatened by actual or forecast strong winds, high seas, restricted visibility or thunderstorms in the port vicinity. Causes and effects of such hazardous conditions are discussed. Precautionary or evasive actions are suggested for various vessel situations. The handbook is organized in four sections for ready reference: general guidance on handbook content and use; a quick-look captain's summary; a more detailed review of general information on environmental conditions; and an appendix that provides oceanographic information.

TR 88-10, November 1988: Climatology of North Pacific Tropical Cyclone Tracks -- R. Miller, T. Tsui, A. Schrader -- 514 pp.

This climatology depicts and provides statistics on the tracks of tropical cyclones that have occurred in the North Pacific Ocean during the years 1945-87. The data are summarized in four types of charts -- mean paths, actual tracks, constancy and relative frequency, and speed of movement -- for both the western and eastern North Pacific regions, in 24 half-monthly calendar periods.

TR 88-11, November 1988: Icing Considerations for HALE (High Altitude, Long Endurance) Aircraft -- G. Vogel -- 55 pp.

Although a low probability event, ice accretion does present a major obstacle to safe aircraft operations. In this report, the character of the aircraft icing environment is explored in terms of key meteorological and aerodynamic factors as related to the HALE (High Altitude, Long Endurance) aircraft. The distribution of icing in the atmosphere, mainly a function of temperature and cloud structure, is presented. Ice forecasting techniques and icing instrumentation are discussed as viable approaches for minimizing potential aircraft icing hazards. It is concluded that an onboard ice accumulation detector in combination with ground-based remote sensing instrumentation would provide the best capability for the detection and monitoring of icing conditions. The use of an automated icing forecasting program, which is both effort- and time-efficient, is recommended.

CR 88-01, March 1988: Passive Microwave Measurements of Water Vapor Fields and Rain for Locating Fronts in Cyclonic Storms -- K. Katsaros, I. Bhatti, L. McMurdie, G. Petty -- 50 pp.

This report describes some basic research techniques and algorithms developed to diagnose fronts in cyclonic storms over the ocean with passive microwave data. The need for this research stems from the limited availability of reliable weather reports over the ocean, and the occasional disruption of weather map transmissions.

In earlier work we found that strong gradients in integrated atmospheric water vapor are good indicators of surface locations of fronts in midlatitude cyclones over the oceans. A second significant indicator of frontal activity is precipitation. Therefore, we have developed methods for flagging strong gradients in integrated atmospheric water vapor (WVG-flag) and the presence of rain by using data from the Scanning Multi-channel Microwave Radiometer (SMMR) aboard polar-orbiting Seasat and Nimbus-7 satellites. The data were not received in real time, but were analyzed from archived tapes. Examination of 65 frontal systems showed the water vapor gradient flag to catch 86% of the fronts while the precipitation flagged 90%. Each flag emphasizes different portions of the cyclone and are therefore complimentary.

Ultimately these techniques are intended for operational use with data from the Special Sensor Microwave Imager (SSM/I) which was launched in June 1987 on a satellite in the Defense Meteorological Satellite Program (DMSP). Such data can be received in real time directly by ships at sea.

CR 88-02, March 1988: Forecasting Aids for Setting Tropical Cyclone Conditions: Sasebo and Iwakuni, Japan -- J. Jarrell -- 46 pp.

Forecast aids for predicting winds associated with tropical cyclones at Sasebo and Iwakuni, Japan, are developed. This report is divided into two parts: the first contains charts that relate winds observed at Sasebo and Iwakuni to tropical cyclone center winds as a function of storm location; and the second provides diagrams that estimate the worst case arrival time of winds of at least 50 kt.

CR 88-03, April 1988: Aerosol Characteristics in the Marine Boundary Layer over the Straits of Gibraltar - June 1986 -- B. Wattle, C. Rogers -- 88 pp.

Measurements of aerosol characteristics in the marine boundary layer were taken during a two-week cruise through the Straits of Gibraltar. Observations of Aitken nuclei concentration, aerosol size spectra (0.01-100 μ m diameter), aerosol composition, visibility (scattering coefficient), optical depth (sun photometry), temperature, humidity, winds and cloud cover were acquired during daylight hours. The data show that surface visibility fluctuations correlate well with particle concentration in the 0.56-1.78 μ m size range. Surface relative humidity and particle composition appear to be the factors that control concentration in this size range.

These data will be used as ground truth for techniques which retrieve aerosol data from satellites. This experiment was well suited for such an application, since there was little cloud cover to obscure satellite measurements; and comprehensive, consistent aerosol measurements were successfully taken.

CR 88-04 through -09: Severe Weather Guide, Mediterranean Ports -- six additional port studies publications in the series to date, as follows:

16. Barcelona -- 74 pp (CR 88-04)
17. Palma, Mallorca -- 63 pp (CR 88-05)
18. Ibiza -- 71 pp (CR 88-06)
19. Polensa Bay -- 72 pp (CR 88-07)
20. Livorno -- 73 pp (CR 88-08)
21. La Spezia -- 61 pp (CR 88-09)

Common Abstract:

This handbook for the port of (port name), one in a series of severe weather guides for Mediterranean ports, provides decision-making guidance for ship captains whose vessels are threatened by actual or forecast strong winds, high seas, restricted visibility or thunderstorms in the port vicinity. Causes and effects of such hazardous conditions are discussed. Precautionary or evasive actions are suggested for various vessel situations. The handbook is organized in four sections for ready reference: general guidance on handbook content and use; a quick-look captain's summary; a more detailed review of general information on environmental conditions; and an appendix that provides oceanographic information.

CR 88-10, June 1988: NOAA AVHRR Observations During the Marginal Ice Zone Experiment, Between Spitzbergen and Greenland, June 7 to July 18, 1984 -- O. Skagseth, K. Kloster, K. Barthel, O. Johannessen -- 137 pp.

The marginal ice zone (MIZ) is the region in which the polar air, ice and water masses interact with the temperate air and ocean masses. During MIZEX-84 an intensive effort was made to obtain an integrated data set including meteorology, oceanography and glaciology, using remote sensing as well as conventional in situ observation methods, in the MIZ between Spitzbergen and Greenland from 7 June to 18 July 1984.

This report gives NOAA AVHRR (Advanced Very High Resolution Radiometer) satellite imagery near-visual and infrared overviews of the Fram Strait and the large-scale surrounding area. For near-visual imagery phenomena of particular interest, e.g., mesoscale vortices, the focus of attention is on off- and on-ice air circulation, island lee effects and synoptic low development. Features of special interest are noted, and important small scale phenomena are enlarged if they are not prominent on the overview images.

An appendix provides satellite images and surface charts showing day to day development over the MIZEX-84 area 7 June-18 July.

CR 88-11, June 1988: Forecasters Handbook for Japan and Adjacent Sea Areas -- R. Englebreton, R. Gilmore -- 659 pp.
(Distribution authorized to U.S. Government agencies and their contractors only; see listing on p. 34.)

(Abstract: same distribution as report)

CR 88-12, August 1988: Program Performance Specification for North Atlantic Fog Forecasting -- C. Rogers -- 29 pp.

A program performance specification (PPS) for forecasting fog in the North Atlantic Ocean is described. The forecasting procedure is based primarily on three inputs: whether there is heating/cooling of the air by the underlying ocean surface; the initial weather conditions and clouds in the boundary layer; and the character of any low-level inversion. This PPS is developed from 68 case studies that utilized weather station ship data from the North Atlantic; because fog in the region is almost exclusively a summertime phenomenon, this study is based on data from the summer season. The purpose of this PPS is to provide additional input for an expert system being developed to forecast maritime obscurations.