

The Integrated Global Fallout Database - IGFD

Version V51 as of 24 January 2020

Michio AOYAMA

Center for Research in Isotopes and Environmental Dynamics

Univ. of Tsukuba

The Integrated Global Fallout Database - IGFD

1, Introduction

The Integrated Global Fallout Database (**IGFD**) provides information on world wide fallout data.

2, Objectives

- a. Re-construction of history of global fallout
- b. Evaluate the fallout on land
- c. Evaluate the fallout on sea surface - source term for global ocean circulation model
- d. Obtain grid data by assimilation - validate the global atmospheric transport model

3, sources of the data used in this database

MRI/Japan data

AERE(AEA/DOE)/UK data

EML(HASL)/USA data

Riso/Denmark data

NRL/New Zealand data

OPRI/France data (not included, waiting the data)

4, Method of construction of the IGFD database

All of the data in the publications/reports are treated as follows;

- a. Input original data in original unit with originator names - small MS Excel files.
- b. convert from original data in the original unit to the values in the present unit Bq m⁻².

When the monthly fallout was not available, monthly fallout were estimated from quarterly/bimonthly fallout data dividing the corresponding number of months.

5, Present status of IGFD database

This database contains;

90Sr, 137Cs and 239,240Pu monthly/quarterly/annual fallout

The station numbers from each institute/program are;

13 stations from MRI/Japan fallout program

28 stations from AERE/AEA program

167 stations from HASL/EML global fallout program

31 stations from RISO/Denmark fallout program

14 stations from NRL/New Zealand fallout program

Station locations are shown in Tables 1-5.

6. QC work is on the way

Quality control work to flag the data is still on the way, then the flags are preliminary.

7, How to get this database

This dataset is published with DOI at <http://www.ied.tsukuba.ac.jp/database/>

Acknowledgment

The authors thank researchers and scientists who conducted/who is conducting fallout studies for long long period. The authors also express special thanks to Ms. Kayono Yamamoto for her effort input/making the database from many publications during these months.

References

Aarkrog. A, J. Lippert, Environmental radioactivity at Riso 1 Apr1957-31Mar1958., Riso-R-3, 1958

Aarkrog. A, J. Lippert, Environmental Radioactivity at Riso 1Apr1958-31Mar1959., Riso-R-9, 1959

Aarkrog. A, J. Lippert, Environmental Radioactivity at Riso 1959., Riso-R-14, 1960

Aarkrog. A, J. Lippert, Environmental Radioactivity in Denmark 1960., Riso-R-23, 1961

Aarkrog. A, J. Lippert, J. Petersen, Environmental Radioactivity in Denmark 1961., Riso-R-41, 1962

Aarkrog. A, J. Lippert, J. Petersen, Environmental Radioactivity in Denmark in 1962., Riso-R-63, 1963

Aarkrog. A, J. Lippert, J. Petersen, Environmental Radioactivity in Greenland in 1962., Riso-R-65, 1963

Aarkrog. A, J. Lippert, J. Petersen, Environmental Radioactivity in the Faroes in 1962.,

Riso-R-64, 1963

Aarkrog. A, J. Lippert, Environmental Radioactivity in Denmark in 1963., Riso-R-85, 1964

Aarkrog. A, J. Lippert, Environmental Radioactivity in the Faroes in 1963., Riso-R-86, 1964

Aarkrog. A, J. Lippert, Environmental Radioactivity in the Greenland in 1963., Riso-R-87, 1964

Aarkrog. A, J. Lippert, Environmental Radioactivity in Denmark in 1964., Riso-R-107, 1965

Aarkrog. A, J. Lippert, Environmental Radioactivity in the Faroes in 1964., Riso-R-108, 1965

Aarkrog. A, J. Lippert, Environmental Radioactivity in the Greenland in 1964., Riso-R-109, 1965

Aarkrog. A, J. Lippert, Environmental Radioactivity in Denmark in 1965., Riso-R-130, 1966

Aarkrog. A, J. Lippert, Environmental Radioactivity in the Faroes in 1965., Riso-R-131, 1966

Aarkrog. A, J. Lippert, Environmental Radioactivity in the Greenland in 1965., Riso-R-132, 1966

Aarkrog. A, J. Lippert, Environmental Radioactivity in Denmark in 1966., Riso-R-154, 1967

Aarkrog. A, J. Lippert, Environmental Radioactivity in the Faroes in 1966., Riso-R-155, 1967

Aarkrog. A, J. Lippert, Environmental Radioactivity in the Greenland in 1966., Riso-R-156, 1967

Aarkrog. A, J. Lippert, Environmental radioactivity in Denmark in 1967., Riso-R-180, 1968

Aarkrog. A, J. Lippert, Environmental radioactivity in the Faroes in 1967., Riso-R-181, 1968

Aarkrog. A, J. Lippert, Environmental radioactivity in the Greenland in 1967., Riso-R-182, 1968

Aarkrog. A, J. Lippert, Environmental radioactivity in Denmark in 1968., Riso-R-201, 1969

Aarkrog. A, J. Lippert, Environmental radioactivity in the Faroes in 1968., Riso-R-202, 1969

Aarkrog. A, J. Lippert, Environmental radioactivity in the Greenland in 1968.,

Riso-R-203, 1969

Aarkrog. A, J. Lippert, Environmental radioactivity in Denmark in 1969., Riso-R-220, 1970

Aarkrog. A, J. Lippert, Environmental radioactivity in the Faroes in 1969., Riso-R-221, 1970

Aarkrog. A, J. Lippert, Environmental radioactivity in the Greenland in 1969., Riso-R-222, 1970

Aarkrog. A, J. Lippert, Environmental radioactivity in Denmark in 1970., Riso-R-245, 1971

Aarkrog. A, J. Lippert, Environmental radioactivity in the Faroes in 1970., Riso-R-246, 1971

Aarkrog. A, J. Lippert, Environmental radioactivity in the Greenland in 1970., Riso-R-247, 1971

Aarkrog. A, J. Lippert, Environmental radioactivity in Denmark in 1971., Riso-R-265, 1972

Aarkrog. A, J. Lippert, Environmental radioactivity in the Faroes in 1971., Riso-R-266, 1972

Aarkrog. A, J. Lippert, Environmental radioactivity in the Greenland in 1971., Riso-R-267, 1972

Aarkrog. A, J. Lippert, Environmental radioactivity in Denmark in 1972., Riso-R-291, 1973

Aarkrog. A, J. Lippert, Environmental radioactivity in the Faroes in 1972., Riso-R-292, 1973

Aarkrog. A, J. Lippert, Environmental radioactivity in the Greenland in 1972., Riso-R-293, 1973

Aarkrog. A, J. Lippert, Environmental radioactivity in Denmark in 1973., Riso-R-305, 1974

Aarkrog. A, J. Lippert, Environmental radioactivity in the Faroes in 1973., Riso-R-306, 1974

Aarkrog. A, J. Lippert, Environmental radioactivity in the Greenland in 1973., Riso-R-307, 1974

Aarkrog. A, J. Lippert, Environmental radioactivity in Denmark in 1974., Riso-R-323, 1975

Aarkrog. A, J. Lippert, Environmental radioactivity in the Faroes in 1974., Riso-R-324, 1975

Aarkrog. A, J. Lippert, Environmental radioactivity in the Greenland in 1974.,

Riso-R-325, 1975

Aarkrog. A, J. Lippert, Environmental radioactivity in Denmark in 1975., Riso-R-345, 1976

Aarkrog. A, J. Lippert, Environmental radioactivity in the Faroes in 1975., Riso-R-346, 1976

Aarkrog. A, J. Lippert, Environmental radioactivity in the Greenland in 1975., Riso-R-347, 1976

Aarkrog. A, J. Lippert, Environmental radioactivity in Denmark in 1976., Riso-R-361, 1977

Aarkrog. A, J. Lippert, Environmental radioactivity in the Faroes in 1976., Riso-R-362, 1977

Aarkrog. A, J. Lippert, Environmental radioactivity in the Greenland in 1976., Riso-R-363, 1977

Aarkrog. A, J. Lippert, Environmental radioactivity in Greenland in 1977., Riso-R-388, 1978

Aarkrog. A, J. Lippert, Environmental radioactivity in the Faroes in 1977., Riso-R-387, 1978

Aarkrog. A, L. Botter-Jensen, H. Dahlgaard, H. Hansen, J. Lippert, S.P. Nielsen, K. Nielsson, Environmental radioactivity in Denmark in 1977., Riso-R-386, 1978

Aarkrog. A, H. Hansen, J. Lippert, Environmental radioactivity in Greenland in 1978., Riso-R-405, 1979

Aarkrog. A, H. Hansen, J. Lippert, Environmental radioactivity in the Faroes in 1978., Riso-R-404, 1979

Aarkrog. A, L. Botter-Jensen, H. Dahlgaard, H. Hansen, J. Lippert, S.P. Nielsen, K. Nielsson, Environmental radioactivity in Denmark in 1978., Riso-R-403, 1979

Aarkrog. A, J. Lippert, Environmental radioactivity in Greenland in 1979., Riso-R-423, 1980

Aarkrog. A, J. Lippert, Environmental radioactivity in the Faroes in 1979., Riso-R-422, 1980

Aarkrog. A, L. Botter-Jensen, H. Dahlgaard, H. Hansen, J. Lippert, S.P. Nielsen, K. Nielsson, Environmental radioactivity in Denmark in 1979., Riso-R-421, 1980

Aarkrog. A, H. Dahlgaard, E. Holm, H. Hansen, J. Lippert, K. Nilsson, Environmental radioactivity in Greenland in 1980., Riso-R-449, 1981

Aarkrog. A, J. Lippert, H. Dahlgaard., Environmental radioactivity in the Faroes in 1980., Riso-R-448, 1981

Aarkrog. A, L. Botter-Jensen, H. Dahlgaard, H. Hansen, J. Lippert, S.P. Nielsen, K.

Nielsson, Environmental radioactivity in Denmark in 1980., Riso-R-447, 1981

Aarkrog. A, H. Dahlgaard, E. Holm, H. Hansen, J. Lippert, K. Nilsson, Environmental radioactivity in Greenland in 1981., Riso-R-471, 1982

Aarkrog. A, H. Dahlgaard, L. Hallstadius, E. Holm, J. Lippert, Environmental radioactivity in the Faroes in 1981., Riso-R-470, 1982

Aarkrog. A, L. Botter-Jensen, H. Dahlgaard, H. Hansen, J. Lippert, S.P. Nielsen, K. Nielsson, Environmental radioactivity in Denmark in 1981., Riso-R-469, 1982

Aarkrog. A, H. Dahlgaard, L. Hallstadius, E. Holm, H. Hansen, J. Lippert, Environmental radioactivity in Greenland in 1982., Riso-R-489, 1983

Aarkrog. A, H. Dahlgaard, L. Hallstadius, E. Holm, H. Hansen, J. Lippert, Environmental radioactivity in the Faroes in 1982., Riso-R-488, 1983

Aarkrog. A, L. Botter-Jensen, H. Dahlgaard, H. Hansen, J. Lippert, S.P. Nielsen, K. Nielsson, Environmental radioactivity in Denmark in 1982., Riso-R-487, 1983

Aarkrog. A, S. Boelskifte, E. Buch, G.C. Christensen, H. Dahlgaard, L. Hallstadius, H. Hansen, E. Holm, S. Mattsson, A. Meide, Environmental radioactivity in the North Atlantic Region. The Faroe Island and Greenland included. 1983., Riso-R-510, 1984

Aarkrog. A, S. Boelskifte, L. Botter-Jensen, H. Dahlgaard, H. Hansen, S.P. Nielsen, Environmental radioactivity in Denmark in 1983., Riso-R-509, 1984

Aarkrog. A, S. Boelskifte, E. Buch, G.C. Christensen, H. Dahlgaard, L. Hallstadius, H. Hansen, E. Holm, Environmental radioactivity in the North Atlantic Region. The Faroe Island and Greenland included. 1984., Riso-R-528, 1985

Aarkrog. A, S. Boelskifte, L. Botter-Jensen, H. Dahlgaard, H. Hansen, S.P. Nielsen, Environmental radioactivity in Denmark in 1984., Riso-R-527, 1985

Aarkrog. A, S. Boelskifte, E. Buch, G.C. Christensen, H. Dahlgaard, L. Hallstadius, H. Hansen, E. Holm, J. Rioseco, Environmental radioactivity in the North Atlantic Region. The Faroe Island and Greenland included. 1985., Riso-R-541, 1986

Aarkrog. A, S. Boelskifte, L. Botter-Jensen, H. Dahlgaard, H. Hansen, S.P. Nielsen, Environmental radioactivity in Denmark in 1985., Riso-R-540, 1986

Aarkrog. A, E. Buch, Q.J. Chen, G.C. Christensen, H. Dahlgaard, H. Hansen, E. Holm, S.P. Nielsen, Environmental radioactivity in the North Atlantic Region. The Faroe Island and Greenland included. 1986., Riso-R-550, 1988

Aarkrog. A, L. Botter-Jensen, Q.J. Chen, H. Dahlgaard, H. Hansen, E. Holm, B. Lauridsen, S.P. Nielsen, J. Sogaard-Hansen, Environmental radioactivity in Denmark in 1986., Riso-R-549, 1988

Aarkrog. A, E. Buch, Q.J. Chen, G.C. Christensen, H. Dahlgaard, H. Hansen, E. Holm, S.P. Nielsen, Environmental radioactivity in the North Atlantic Region. The Faroe

Island and Greenland included. 1987., Riso-R-564, 1989

Aarkrog. A, L. Botter-Jensen, Q.J. Chen, H. Dahlgaard, H. Hansen, E. Holm, B. Lauridsen, S.P. Nielsen, J. Sogaard-Hansen, Environmental radioactivity in Denmark in 1987., Riso-R-563, 1989

Aarkrog. A, E. Buch, Q.J. Chen, G.C. Christensen, H. Dahlgaard, H. Hansen, E. Holm, S.P. Nielsen, Environmental radioactivity in the North Atlantic Region. The Faroe Island and Greenland included. 1988-1989., Riso-R-571, 1991

Aarkrog. A, H. Hansen, Environmental radioactivity in Denmark in 1988-1989., Riso-R-570, 1991

Aarkrog. A, H. Hansen, Environmental radioactivity in Denmark in 1990-1991., Riso-R-621, 1992

Aarkrog. A, E. Buch, Q.J. Chen, G.C. Christensen, H. Dahlgaard, H. Hansen, E. Holm, S.P. Nielsen, M. Strandberg, Environmental radioactivity in the North Atlantic Region. The Faroe Island and Greenland included. 1990-1991., Riso-R-622, 1994

Aarkrog. A, should be added all authors name, Environmental Radioactivity in Denmark in 1992 and 1993., Riso-R-756(EN), 1995

Aarkrog. A, should be added all authors name, Environmental Radioactivity in the North Atlantic Region Including the Faroe Islands and Greenland. 1992 and 1993., Riso-R-757(EN), 1997

Aoyama. M, Evidence of Stratospheric Fallout of Caesium Isotopes from the Chernobyl Accident., Geophys. Res. Lett., 15, 4, 327-330, 1988

Aoyama. M, K. Hirose, Y. Sugimura, The Temporal Variation of Stratospheric Fallout Derived from the Chernobyl Accident., J. Environ. Radioactivity., 13, 103-115, 1991

Cambray. R. S, Miss E. M. R. Fisher, J. D. Eakins, D. H. Peirson, Radioactive Fallout in Air and Rain: Results to the middle of 1968., AERE-R 5899(HMSO), 1968

Cambray. R. S, K. Playford, G. N. J. Lewis,, Radioactive Fallout in Air and Rain: Results to the middle of 1975., AERE-R 8267(HMSO), 1976

Cambray. R. S, K. Playford, G. N. J. Lewis,, Radioactive Fallout in Air and Rain: Results to the middle of 1976., AERE-R 8671(HMSO), 1977

Cambray. R. S, K. Playford, G. N. J. Lewis,, Radioactive Fallout in Air and Rain: Results to the middle of 1977., AERE-R 9016(HMSO), 1978

Cambray. R. S, K. Playford, G. N. J. Lewis,, Radioactive Fallout in Air and Rain: Results to the middle of 1978., AERE-R 9441(HMSO), 1979

Cambray. R. S, K. Playford, G. N. J. Lewis,, Radioactive Fallout in Air and Rain: Results to the middle of 1979., AERE-R 9672(HMSO), 1980

Cambray. R. S, K. Playford, G. N. J. Lewis,, Radioactive Fallout in Air and Rain:

Results to the middle of 1980., AERE-R 10088(HMSO), 1981

Cambray. R. S, K. Playford, G. N. J. Lewis,, Radioactive Fallout in Air and Rain:
Results to the middle of 1981., AERE-R 10485(HMSO), 1982

Cambray. R. S, K. Playford, G. N. J. Lewis,, Radioactive Fallout in Air and Rain:
Results to the middle of 1982., AERE-R 10859(HMSO), 1983

Cambray. R. S, K. Playford, G. N. J. Lewis,, Radioactive Fallout in Air and Rain:
Results to the middle of 1983., AERE-R 11475(HMSO), 1984

Cambray. R. S, K. Playford, G. N. J. Lewis,, Radioactive Fallout in Air and Rain:
Results to the middle of 1984., AERE-R 11915(HMSO), 1985

Cambray. R. S, K. Playford, G. N. J. Lewis, Radioactive Fallout in Air and Rain :
Results for 1985 and 1986., AERE-R 12872(HMSO), 1987

Cambray. R. S, K. Playford, G. N. J. Lewis, R. C. Carpenter, Radioactive Fallout in Air
and Rain : Results to the end of 1987., AERE-R 13226(HMSO), 1989

Cambray. R. S, K. Playford, G. N. J. Lewis, R. C. Carpenter, Radioactive Fallout in Air
and Rain : Results to the end of 1988., AERE-R 13575(HMSO), 1990

Crooks. R. N, R. D. G. Osmond, M. J. Owers, Miss E. M. R. Fisher, The Deposition of
Fission Products from Distant Nuclear Test Explosions Results to mid-1959., AERE- R
3094(HMSO), 1959

Crooks. R. N, R. D. G. Osmond, Miss E. M. R. Fisher, M. J. Owers, T. W. Evett, The
Deposition of Fission Products from Distant Test Explosions : Results to the middle of
1960., AERE-R 3349(HMSO), 1960

Crooks. R. N, Miss E. M. R. Fisher, J. D. Eakins, D. H. Peirson, Radioactive Fallout in
Air and Rain: Results to the middle of 1961., AERE-R 3766(HMSO), 1961

Crooks. R. N, Miss E. M. R. Fisher, J. D. Eakins, D. H. Peirson, Radioactive Fallout in
Air and Rain: Results to the middle of 1962., AERE-R 4094(HMSO), 1962

Crooks. R. N, Miss E. M. R. Fisher, J. D. Eakins, D. H. Peirson, Radioactive Fallout in
Air and Rain: Results to the middle of 1963., AERE-R 4392(HMSO), 1963

Crooks. R. N, Miss E. M. R. Fisher, J. D. Eakins, D. H. Peirson, Radioactive Fallout in
Air and Rain: Results to the middle of 1964., AERE-R 4687(HMSO), 1964

Crooks. R. N, Miss E. M. R. Fisher, J. D. Eakins, D. H. Peirson, Radioactive Fallout in
Air and Rain: Results to the middle of 1965., AERE-R 4997(HMSO), 1965

Crooks. R. N, Miss E. M. R. Fisher, J. D. Eakins, D. H. Peirson, Radioactive Fallout in
Air and Rain: Results to the middle of 1966., AERE-R 5260(HMSO), 1966

Crooks. R. N, Miss E. M. R. Fisher, J. D. Eakins, D. H. Peirson, Radioactive Fallout in
Air and Rain: Results to the middle of 1967., AERE-R 5575(HMSO), 1967

Crooks. R. N, Miss E. M. R. Fisher, J. D. Eakins, D. H. Peirson, Radioactive Fallout in

Air and Rain: Results to the middle of 1969., AERE-R 6212(HMSO), 1969

Crooks. R. N, Miss E. M. R. Fisher, J. D. Eakins, D. H. Peirson, Radioactive Fallout in Air and Rain: Results to the middle of 1970., AERE-R 6556(HMSO), 1970

Crooks. R. N, Miss E. M. R. Fisher, J. D. Eakins, D. H. Peirson, Radioactive Fallout in Air and Rain: Results to the middle of 1971., AERE-R 6923(HMSO), 1971

Crooks. R. N, Miss E. M. R. Fisher, J. D. Eakins, D. H. Peirson, Radioactive Fallout in Air and Rain: Results to the middle of 1972., AERE-R 7245(HMSO), 1972

Crooks. R. N, Miss E. M. R. Fisher, J. D. Eakins, D. H. Peirson, Radioactive Fallout in Air and Rain: Results to the middle of 1973., AERE-R 7540(HMSO), 1973

Crooks. R. N, Miss E. M. R. Fisher, J. D. Eakins, D. H. Peirson, Radioactive Fallout in Air and Rain: Results to the middle of 1974., AERE-R 7832(HMSO), 1974

Energy Research & Development Administration, Health and Safety Laboratory
Invironmental Quarterly., HASL -298(1954-1975), 1976

Geochemical Research Department, Geochemical Studies and Analytical Methods of Anthropogenic Radionuclides in Fallout Samples., Technicial Reports of the Meteorological Research Institute, 36, 1996

Heydorn. K,J. Lippert, P. Theodorsson, The Radioactivity in the Riso District Measurements up to 1st April,1957., Riso-R-1, 1957

Juzdan. Z. R, Environmental Measurements Laboratory. Worldwide Deposition of 90Sr Through 1985., EML-515(1985), 1988

Katsuragi. Y, A Study of 90Sr Fallout in Japan., Pap. Met. Geophys., 33, 4, 277-291, 1983

Katsuragi. Y, M. Aoyama, Seasonal Variation of Sr-90 Fallout in Japan through the End of 1983., Pap. Met. Geophys., 37, 1, 15-36, 1986

Larsen. R. J, Environmental Measurements Laboratory. Worldwide Deposition of 90Sr Through 1983., EML-444(1976-1983), 1985

Larsen. R.J., Z.R. Juzdan, Worldwide deposition of strontium-90 through 1984., EML-457(1984), 1986

Monetti. Matthew A., Richard J. Larsen, Worldwide Deposition of Strontium-90 Through 1986., EML-533(1986), 1991

Monetti. Matthew A., Worldwide Deposition of Strontium-90 Through 1990., EML-579(1987-1990), 1996

Playford. K, G. N. J. Lewis, R. C. Carpenter, Radioactive Fallout in Air and Rain : Results to the end of 1989., AEA-EE-0227(HMSO), 1990

Playford. K, G. N. J. Lewis, R. C. Carpenter, Radioactive Fallout in Air and Rain : Results to the end of 1990., AEA-EE-0362(HMSO), 1992

Playford. K, J. Toole, I. Adsley, Radioactive Fallout in Air and Rain : Results to the end of 1991., AEA-EE-0498, 1993

Playford. K, J. Toole, T. Sanders, Radioactive fallout in air and rain : Results to the end of 1992., DOE/RAS/94.001, 1994

Playford. K, J. Toole, T. Sanders, Radioactive fallout in air and rain : Results to the end of 1993., DOE/RAS/94.004, 1995

Playford. K, J. Toole, T. Sanders, Radioactive fallout in air and rain : Results to the end of 1994., DOE/RAS/95.010, 1995

Playford. K, S.J. Baker, J. Toole, T. Sanders, Radioactive fallout in air and rain : Results to the end of 1995., DOE/RAS/96.016, 1996

Stewart. N. G, R. G. D. Osmond, R. N. Crooks, Miss E. M. R. Fisher, The Worldwide Deposition of Long-lived Fission Products from Nuclear Test Explosions., AERE-HP/R 2354(HMSO), 1957

Stewart. N. G, R. G. D. Osmond, R. N. Crooks, Miss E. M. R. Fisher, M. J. Owers, The Deposition of Long-lived Fission Products from Nuclear Test Explosions Results up to the middle of 1958., AERE-HP/R 2790(HMSO), 1959

Table 1

MRI/Japan stations

MRIREFNO	site	xlon	xlat
MRIREFNO	site	xlon	xlat
MRI000	MRIfull Japan	140.13	36.05
MRI001	MRI Japan	140.13	36.05
MRI002	Sapporo Japan	141.33	43.05
MRI003	Sendai Japan	140.90	38.27
MRI004	Tokyo Japan	139.77	35.68
MRI005	Osaka Japan	135.52	34.68
MRI006	Fukuoka Japan	130.38	33.58
MRI007	Akita Japan	140.10	39.72
MRI008	Mito Japan	140.47	36.38
MRI009	Wakkanai Japan	141.68	45.42
MRI010	Wajima Japan	136.90	37.38
MRI011	Yonago Japan	133.35	35.43
MRI012	Kushiro Japan	144.40	42.98
MRI013	Ishigaki Japan	124.17	24.33

Table 2

AERE(AEA/DOE)/UK stations

MRIREFNO	Site	xlon	xlat
AERE001	Milford Haven	-5.00	51.50
AERE002	Chilton,Oxon	-1.00	51.50
AERE003	Snowdon,Gwynedd	-4.00	53.00
AERE004	Tromso,Norway	19.00	69.50
AERE005	Reykjavik,Iceland	-22.00	69.50
AERE006	Esquimalt,Canada	-123.50	48.50
AERE007	Ottawa,Canada	-45.50	45.50
AERE008	Singapore	104.00	1.50
AERE009	Melbourne,Australia	145.00	-38.00
AERE010	Ohakea,New Zealand	175.00	-40.00
AERE011	Mt.Pleasant,Falkland Islands	-58.00	-52.00
AERE012	Pretoria,South Africa	28.00	-26.00
AERE013	Hong Kong	114.00	22.50
AERE014	Nassau,Bahamas	-77.50	25.00
AERE015	Lerwick Shetland	-1.00	60.00
AERE016	Glasgow Strathclyde	-4.50	56.00
AERE017	Eskdalemuir Dumfries	-3.00	55.50
AERE018	Aldergrove Antrim	-5.50	54.50
AERE019	Conlig Co Down	-5.50	54.50
AERE020	Orfordness Suffolk	1.50	52.00
AERE021	Brawdy Dyfed	-5.00	51.50
AERE022	Compton Oxon	-1.50	51.50
AERE023	London	0.00	51.50
AERE024	Gibraltar	-5.50	36.00
AERE025	Gaborone Botswana	26.00	-25.00
AERE026	Brisbane Australia	153.00	-27.50
AERE027	Argentine Islands Antarctica	-64.00	-65.50
AERE028	Halley Bay Antarctica	-26.00	-75.50

Table 3

EML(HASL)/USA stations

入力順位	site	xlon	xlat
EML001	New York,New York	-73.83	40.67
EML002	Alaska,Anchorage	-149.98	61.17
EML003	Alaska,Fairbanks	-147.87	64.82

EML004	Alaska,Juneau	-134.58	58.37
EML005	Iceland,Keflavik	-22.60	63.97
EML006	Majuro Island	171.38	7.08
EML007	Koror Island	134.52	7.35
EML008	Japan,Hiroshima	132.45	34.38
EML009	Japan,Nagasaki	129.87	32.75
EML010	New Jersey,Chester	-74.67	40.80
EML011	Philippine I.,Clark AB	120.55	15.18
EML012	Hawaii,Honolulu	-157.83	21.32
EML013	Guam,Anderson AFB	144.92	13.58
EML014	Greenland,Thule	-68.63	76.58
EML015	Taiwan,Taipei	121.53	25.08
EML016	Ponape Island	158.22	6.97
EML017	Peru,Lima1	-77.05	-12.10
EML017b	Peru,Lima2	-77.12	-12.02
EML018	Truk Island	151.85	7.47
EML019	Wake Island	166.65	19.28
EML020	Utah,Salt Lake City	-110.82	40.77
EML021	Austria,Vienna	16.37	48.25
EML022	Austria,Klagenfurt	14.33	46.65
EML023	Alabama,Birmingham	-86.92	33.50
EML024	Alaska,Barrow	-156.83	71.27
EML025	Alaska,Cold Bay	-162.72	55.20
EML026	Argentina,Malargue	-69.58	-35.48
EML027	Australia,Adelaide	138.58	-34.93
EML028	Australia,Brisbane	153.03	-27.47
EML029	Australia,Darwin	130.85	-12.47
EML030	Australia,Hobart	147.33	-42.88
EML031	Australia,Melbourne	144.97	-37.82
EML032	Australia,Perth	115.85	-31.95
EML033	Australia,Sydney	151.20	-33.87
EML034	Australia,Townsville	146.77	-19.30
EML035	Azores,Lajes Field	-27.07	38.73
EML036	Bermuda,Kindley AFB	-64.52	32.37
EML037	Brazil,Belem	-48.48	-1.45
EML038	Brazil,Brasilia	-47.93	-15.87
EML039	Brazil,Itaici Sao Pulo	-47.18	-23.10
EML040	Brazil,Manaus	-60.02	-3.03

EML041	Brazil,Nova Friburgo	-42.53	-22.28
EML042	Brazil,Recife	-34.97	-8.03
EML043	Brazil,S. Jose Dos Campos	-45.85	-23.23
EML044	Brazil,Sao Leopoldo	-51.18	-29.75
EML045	California,W Los Angeles	-118.45	34.07
入力順位	site	xlon	xlat
EML046	California,Richmond1	-108.63	37.93
EML046b	California,Richmond2	-108.63	37.93
EML047	California,San Francisco	-122.38	37.62
EML048	Canada,Newfoundland1	-58.57	48.53
EML048b	Canada,Newfoundland2	-60.42	53.32
EML049	Canton Island	-171.72	-2.77
EML050	Cylon,Colombo	79.87	6.92
EML051	Chile,Santiago1	-70.67	-33.48
EML051b	Chile,Santiago2	-70.70	-32.45
EML052	Colorado,Denver	-104.88	39.77
EML053	Congo Rep.Kinshasa Site 1	15.30	-4.30
EML054	Costa Rica,Turrialba	-83.65	9.88
EML055	Ecuador,Quito	-78.50	-0.23
EML056	Fiji Island,Suva	178.42	-18.15
EML057	Florida,Coral Gables	-80.28	25.73
EML058	Hawaii,Hilo	-155.07	19.72
EML059	Hawaii,Lihue	-159.35	21.98
EML060	Hawaii,Mauna Loa	-155.58	19.53
EML061	Hong Kong	-114.20	22.30
EML062	Illinois,Argonne	87.98	41.70
EML063	Iran,Tehran	51.38	35.73
EML064	Italy,Florence	11.25	43.78
EML065	Italy,Milan	9.20	45.47
EML066	Iwo Jima	141.32	24.78
EML067	Japan,Misawa	141.37	40.70
EML068	Japan,Tachikawa	139.40	35.70
EML069	Johnston Island	-169.53	16.75
EML070	Kenya,Kikuyu	36.63	-1.22
EML071	Kenya,Nairobi	39.82	-1.28
EML072	Kentucky,Louisville1	-85.80	38.22
EML072b	Kentucky,Louisville2	-85.80	38.22

EML073	Lebanon,Beirut	35.47	33.90
EML074	Liberia,Monrovia	-10.72	6.33
EML075	Libya,Wheelus AB	13.28	32.90
EML076	Maryland,Silver Hill	-77.02	39.00
EML077	Mexico,Mexico City	-99.05	19.43
EML078	Minnesotaa,Intl Falls	-93.43	48.57
EML079	Missouri,Columbia	-92.33	38.97
EML080	Montana,Helena	-112.00	46.60
EML081	Morocco,Sidi Sli AFB	-8.53	32.85
EML082	New Jersey,Westwood1	-74.03	41.00
EML082b	New Jersey,Westwood2	-74.03	41.00
EML083	New Zealand,Wellington	174.77	-41.28
EML084	Nigeria,Lagos	3.40	6.43
EML085	North Dakota,Williston	-103.63	48.17
EML086	Norway,Osolo	10.75	59.93
入力順位	site	xlon	xlat
EML087	Oklahoma,Tulsa	-95.97	3.12
EML088	Oregon,Medford	-122.87	42.37
EML089	Pakistan,Karachi	67.03	24.85
EML090	Panama Canal Zone	-79.60	8.92
EML091	Puerto Rico,San Juan	-66.00	18.43
EML092	Rep.Of S.Africa,Durban	30.98	-29.87
EML093	Rep.Of S.Africa,Pretoria	28.23	-25.75
EML094	Rep.Of Zaire,Kinshasa	15.30	-4.33
EML095	Republic Of Singapore	103.83	1.33
EML096	Zimbabwe,Harare(Salisbury)	31.05	-17.80
EML097	Saudi Arabia,Dhahran	50.08	26.30
EML098	Scotland,Prestwick	-4.62	55.50
EML099	South Carolina,Columbia	-81.12	33.95
EML100	South Dakota,Vermillion	-96.93	42.78
EML101	Texas,Houston1	-95.28	29.65
EML101b	Texas,Houston2	-95.42	29.75
EML101c	Texas,Houston3	-95.42	29.75
EML102	Washington,Forks	-124.60	48.37
EML103	Yap Island	138.13	9.52
EML104	Alaska,Nome	-165.50	64.50
EML105	American Samoa,Pagopago	-170.72	-14.27

EML106	American Samoa,Tutuila	-170.72	-14.25
EML107	Argentina,Buenos Aires	-58.43	-34.62
EML108	Argentina,Formosa	-58.17	-26.18
EML109	Bahamas,Bimini	-79.25	25.67
EML110	Bolivia,Chacaltaya	-68.13	-16.35
EML111	Bolivia,La Paz (city)	-68.12	-16.50
EML111b	Bolivia,La Paz (OVEJUYO)	-68.07	-16.53
EML112	Brazil,Rio De Janeiro	-43.22	-22.90
EML113	Brazil,Trindade Island	-29.33	-20.52
EML114	California,Palo Alto1	-122.25	37.50
EML114b	California,Palo Alto2	-122.25	37.50
EML115	Canada,Ontario,Moosonee	-80.65	51.27
EML116	Chichi Jima	143.00	27.00
EML117	Chile,Antarctica,Isla Dec	-60.60	-62.93
EML118	Chile,Antofagasta	-70.27	-23.62
EML119	Chile,Concepcion	-73.03	-36.83
EML120	Chile,Cristo Redentor	-70.12	-32.83
EML121	Chile,Easter Island	-109.43	-27.17
EML122	Chile,Isla Rob.Crusoe	-78.87	-33.62
EML123	Chile,Linares	-71.60	-35.85
EML124	Chile,Portillo	-70.13	-32.42
EML125	Chile,Puerto Montt	-73.12	-41.43
EML126	Chile,Punta Arenas	-70.83	-53.00
EML127	Chile,Temuco	-72.58	-38.77
EML128	Colombia,Bogota	-74.08	4.63
入力順位	site	xlon	xlat
EML129	Ecuador,Guayaquil	-79.87	-2.17
EML130	Eniwetok Atoll	162.35	11.35
EML131	Ethiopia,Addis Ababa	38.70	9.05
EML132	Florida,Miami	-80.28	25.82
EML133	Germany,Munich	11.70	48.13
EML134	Germany,Rhein Main AFB	8.57	50.03
EML135	Libya,Ben Gashir Tripoli	13.18	32.90
EML136	Libya,Cyrene	21.85	32.82
EML137	Louisiana,New Orleans	-90.05	30.00
EML138	Morocco,Rabat	-6.85	34.03
EML139	Ohio,Wooster	-81.83	40.78

EML140	Oklahoma,Midwest City	-97.50	35.42
EML141	Pakistan,Lahore	74.37	31.65
EML142	Pakistan,Rawalpindi	73.08	33.67
EML143	Pennsylvania,Pittsburgh1	-80.00	40.43
EML143b	Pennsylvania,Pittsburgh2	-80.00	40.43
EML144	Philippine I.,Cebu City	123.90	10.33
EML145	Philippine I.,Quezon City	121.08	14.67
EML146	Portugal,Sacavem	-9.10	38.78
EML147	Rep.Of Korea,Mokpo	126.42	34.83
EML148	Rep.Of Korea,Seoul	127.00	37.50
EML149	Rep.Of Zaire,Bunia	30.22	-1.53
EML150	Rep.Of Zaire,Karavia	27.43	-11.63
EML151	Syria,Damascus	36.23	33.48
EML152	Syria,Kamishly	41.22	37.05
EML153	Taiwan,Tainan	120.23	23.02
EML154	Taiwan,Taitung	121.17	22.75
EML155	Tennessee,Chattanooga	-85.33	35.05
EML156	Texas,Dallas	-93.85	32.85
EML157	Texas,El Paso	-106.40	31.80
EML158	Thailand,Bangkok1	100.50	13.73
EML158b	Thailand,Bangkok2	100.50	13.73
EML159	Uar,Alexandria	29.92	31.22
EML160	Uar,Cairo (Inshas)	31.38	30.38
EML161	Venezuela,Caracas Site 1	-66.98	10.40
EML162	Venezuela,Caracas Site 2	-66.80	10.05
EML163	Virginia,sterling	-77.47	38.98
EML164	washington,Seattle1	-122.33	47.58
EML164b	washington,Seattle2	-122.33	47.58
EML165	Wisconsin,Appleton	-88.42	44.25
EML166	Wisconsin,Green Bay	-88.13	44.48
EML167	Rep. Of Zaire, Mbandaka	18.47	0.05

Table 4

Riso/Denmark stations

MRIREFNO	site	xlon	xlat
RISO001	Denmark	12.13	55.58
RISO002	Jutland	9.50	56.42

RISO003	Islands		
RISO004	Hojvig	-6.50	62.00
RISO005	Klaksvig	-6.00	62.18
RISO006	Faroese	-7.72	62.00
RISO007	Thorshavn	-6.85	62.02
RISO008	Tvaera	-6.00	61.67
RISO009	Scoresbysund(Kap Tobin)	-21.77	70.48
RISO010	Prins Christians Sund	-43.82	60.03
RISO011	Godthad	-51.95	64.17
RISO012	Upemavik	-56.12	72.92
RISO013	Tylstrup	10.05	57.27
RISO014	Kalo	10.35	56.19
RISO015	Studsgard	8.75	56.11
RISO016	Borris	8.49	55.95
RISO017	Odum	10.15	56.41
RISO018	Askov	9.15	55.41
RISO019	St Jyndevad	9.25	54.89
RISO020	Blangstedgard	10.23	55.24
RISO021	Aarslev	10.50	55.22
RISO022	Tystofte	11.29	55.22
RISO023	Virumgard	12.31	55.46
RISO024	Abed	11.29	54.50
RISO025	Akirkeby	14.56	55.04
RISO026	Ledreborg	11.50	55.36
RISO027	Bornholm	14.56	55.04
RISO028	Tombygaard	14.26	55.14
RISO029	Kannike	14.56	55.04
RISO030	Godhavn	-53.33	69.15
RISO031	Danmarkshavn	-18.00	77.00

Table 5

NRL/New Zealand stations

MRIREFNO	Site	xlon	xlat
NRL001	Kaitaia	173.25	-35.12

NRL002	Auckland	174.73	-36.88
NRL003	New Plymouth	174.07	-39.07
NRL004	Havelock Nth	173.88	-36.65
NRL005	Wellington	174.77	-41.30
NRL006	Greymouth	171.20	-42.45
NRL007	Christchurch	172.63	-43.70
NRL008	Dunedin	170.50	-45.88
NRL009	Invercargill	168.33	-46.37
NRL010	Suva,Fiji	178.42	-18.13
NRL011	Rarotonga	-159.77	-21.23
NRL012	Gracefield	-174.93	-41.28
NRL013	Ohakea	175.00	-40.00
NRL014	Hokitika	-170.58	-42.43