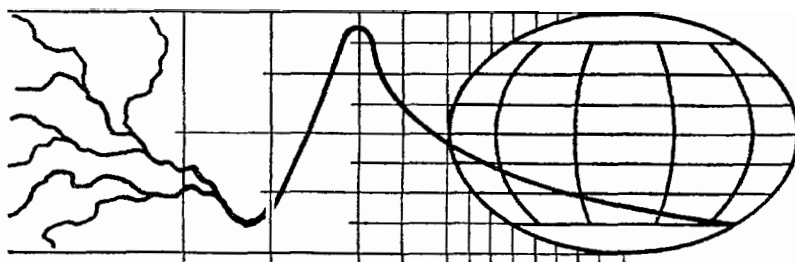


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Koblenz, Deutschland

Global Runoff Data Centre  
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Koblenz, Germany

**Report No. 8**

**First Interim Report on the Arctic  
River Database for the Arctic Climate  
System Study ( ACSYS)**



**GRDC**



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## **1. Introduction**

This report is the first Interim Report on the Arctic River Database (ARDB) for the Arctic Climate System Study (ACSYS) project. The report reflects the status of available data in the GRDC as of 30 May 1995 which has been updated from the dataset announced for distribution at the 7th session of the GEWEX Scientific Steering Committee in January 1995.

With the submission of this report, the GRDC timely responds to the need of an Arctic River Database (ARDB) spelt out in the Initial Implementation Plan for the ACSYS project.

It is hoped that the compilation of a more comprehensive ARDB will contribute to narrow the estimation bandwidth of Arctic river runoff which presently shows differences of 50% and more (ACSYS Science Plan, 1992). Such an estimation bandwidth is unacceptable for quantitative modelling purposes in the ACSYS project. The GRDC therefor calls for the active efforts from ACSYS participants to submit historical and current data on a regular basis.

## **2. Rational for the establishment of the ARDB**

In accordance with the Initial Implementation Plan for ACSYS (9/1994), the specific objectives of the ACSYS hydrological programme are to:

- Determine the elements of the fresh water cycle in the Arctic region and their time and space variability;
- Quantify the role of atmospheric, hydrological and land surface processes and their interactions;
- Provide an observational basis for the assessment of possible long-term trends of the components of the fresh water balance in the Arctic region under changing climate;
- Develop mathematical models of the hydrological cycle under specific Arctic climate conditions, suitable for inclusion in coupled climate models.

The latter objective will be achieved by the adaption of refined macro-scale hydrological models to the specific environmental conditions of the Arctic.

For selected river catchments in the Arctic region, the development of conceptual or parametric meso-scale hydrological models are foreseen in the scientific strategy of ACSYS. The ARDB forms the principal database for the macro-scale hydrological modelling in the Arctic region.

### **3. Implementation of the ARDB**

The ARDB has been compiled using the state-of-the-art relational database system of the GRDC which allows the import of data in a large variety of formats, the storage of the data in a consistent way and the retrieval of data using the search-and-query capabilities of the INFORMIX databank system implemented under SCO-UNIX. The data have been exported into EXCEL-Spreadsheet format which allows also graphical data processing. The ARDB has been established at the GRDC as a separate ACSYS-Project Databank using the available GRDC databank tools. The ARDB has an identical physical and logical structure as the entire GRDC database. An example for a typical format for daily and mean monthly discharge data and format for missing values is reproduced in figure 1.

The data have been compiled in such a way that not only stations close to the mouth of major rivers into the Arctic Ocean have been selected but also stations of sub-basins of larger rivers. While the stations close to the mouth of the rivers can be easily identified by their coordinates, location on the maps and the fat print in the tables, the sub-basin stations enable the users to derive information about the hydrological cycle and runoff generation far in the coastal hinterland of the continents. This supports the study of seasonal regimes and time-lags in runoff generation during the melting period and the reduction of runoff during the winter season. The seasonal variability of freshwater flux into the Arctic Ocean is of particular interest to quantify effects on the thermohaline circulation which inter alia determines the thermal ocean-atmosphere regime.

It is expected, that the ACSYS database will significantly increase once more data will become available from the territory of the former Soviet Union, possibly in August 1995. In this respect, an agreement has been reached between the State Institute of Hydrology, St. Petersburg and the GRDC in March 1995. In any case, the data holdings have largely increased from 15 stations as stated in the ACSYS-Science Plan (1992) to currently 182 stations including hinterland stations.

## EXPLANATION OF DAILY RUNOFF DATAFILES

COMMENT:

The values are in m3/s or l/s (see remark in the station-catalog).

Each data row has a length of 80 characters + line-feed, where the year, month and number of row are right-bound. There are always three rows per month. The first 2 rows contain 10 flow-values; the third will differ from 8 to 11 values, depending on the count of days per month.

Each value consists of 6 characters. There maybe leading blanks.

Missing values will be marked with " 9999." (see 2nd Jan. 1978)

As you may recognize, in the example above the data-rows are only 76 characters of length this is because of formatting as a print-file!

Example:

February 23rd, 1978 = 168.00

| EXPLANATION OF MONTHLY MONETARY DATA TRENDS |   |        |
|---------------------------------------------|---|--------|
| A                                           |   | B      |
| AMAZONAS                                    |   | OBIDOS |
| C                                           | D |        |

1928111100013800018100020600021700021400019800016900011700085300.85500.90200.  
192910400012800014200018200020900021500019900017200013700090900.80100.93900  
19301140001440001710001940002040002010001920017400013800010100089800.93500  
193111000013300016300019000020100019400017400014000097600.81500.86400.94000.  
193211900016200018800020500021100020800019600017000013100093500.85800.93000.  
193311100014400016600018900020800020700020000016800010700076900.80500.91400.  
1934110000146000182000202000220000216000210000183000149000119000118000129000  
193514300016000018000020300022100021600019700016700012900091200.75700.79800.  
1936 9999.14200016200017600019300018100016200013500091900.87100.81900.82300.

COMMENTS:

A = Name of river (= 40 characters)  
B = Name of station (= 40 characters max.)  
C = Year  
D = data (January - December)

Each value = 6 characters (there maybe leading blanks!)

The values are in m3/s or l/s (see remark in the station-catalog)

Missing values = ' 9999.' (see January 1936)

Each data-row = 76 characters (not including line-feed)

Example:

March, 1935 = 180000 m<sup>3</sup>/s

|                                           |        |              |          |      |       |   |      |   |      |   |   |  |  |  |  |
|-------------------------------------------|--------|--------------|----------|------|-------|---|------|---|------|---|---|--|--|--|--|
| 04 Mediterranean Sea Coast (Western Part) |        |              |          |      |       |   |      |   |      |   |   |  |  |  |  |
| 1104150                                   | Chelif | Sidi Belatar | AL 3602N | 027E | 43750 | 1 | 1976 | 8 | 1978 | M | 1 |  |  |  |  |
| 1304800                                   | Kert   | Dar Driouch  | MC 3490N | 329W | 1353  | 6 | 1969 | 9 | 1987 | D | 1 |  |  |  |  |

| A        | B | C | D | E | F | G | H | I | J | K |
|----------|---|---|---|---|---|---|---|---|---|---|
| COMMENT: |   |   |   |   |   |   |   |   |   |   |

A = GRDC-Code      B = Name of river      C = Name of station  
D = Code of country      E = Latitude      F = Longitude  
G = Catchment area in km<sup>2</sup>      H = first missing record in database  
I = last missing record in database      J = Daily/Monthly data  
K = Code of measurement (1 = runoff in m<sup>3</sup>/s, 2 = runoff in l/s)

GRDC-Code (for example 1304800):

1 = WMO-Region (1 = Africa)  
3 = GRDC-Country code (3 = Morocco)  
04 = GRDC-Subregion; main river basin (04 = Mediterranean Sea Coast)  
800 = GRDC-Station code

Length of data-row: max. 133 characters (incl. line-feed)

To E and F:

To get the real values you have to divide the named value by 100. So for example 3627N means 36.27 degrees North.

3

#### **4. Data quality**

The data have been checked for plausibility as far as this was possible at the moment. More sophisticated tools will become available in the GRDC later this year. All data are published in national hydrological yearbooks and their quality is assessed as good - satisfactory. Due to the technical difficulties to determine discharge in the Arctic region (see remarks below) there exists a bandwidth of error in the discharge calculation in the order of absolutely 15% at hinterland stations and around 30% at coastal stations. The error bandwidth resulting from discharge measurements and the use of different time-series explain a large part of the differing calculations of runoff into the Arctic Ocean. Considering the quality of hydrological measurements by the hydrological services of the countries contributing to the ACSYS project it is safely assumed, that the time-series of the data from different sources are of comparable accuracy.

#### **5. Access to the ARDB**

The database, tables and graphics documented in this report can be obtained through GRDC on diskettes. The ACSYS Science Steering Group may however wish to define user rights for the access to the *entire* ACSYS database in close liaison with GRDC's data dissemination policy endorsed by the Steering Committee of the GRDC on its 2nd session in Koblenz, June 1995. *Subsets* of the database are in principal free for interested users.

#### **6. Data products for ACSYS**

Because of the interim character of this report, the freshwater flux into the Arctic Ocean has not been computed. This will be done after the final compilation of the ARDB.

However, just to compare the flux figures given by Aagard and Carmack (1989), reproduced in the ACSYS Science Plan, the figures for the nine largest rivers draining into the Arctic Ocean have been computed from the current hydrological database of the GRDC (figure 2).

GRDC expects that ACSYS defines standard data products as input for further data analysis and hydrological modelling. Specific data products such as graphs and data files of the flow variability of selected rivers can be created on request. Examples of such graphs are presented in figure 3 and 4 for the rivers Ob and Yensisei.

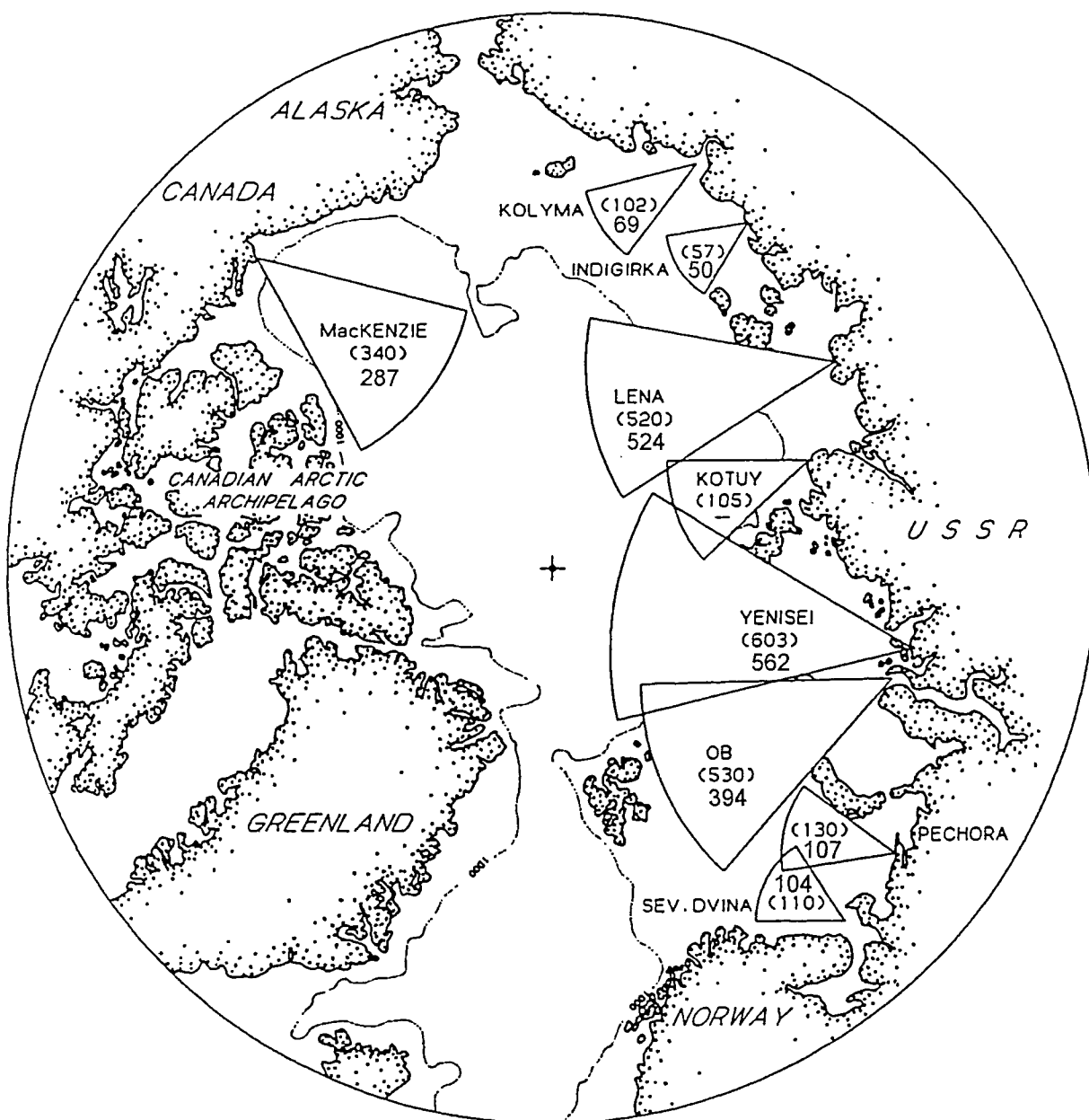
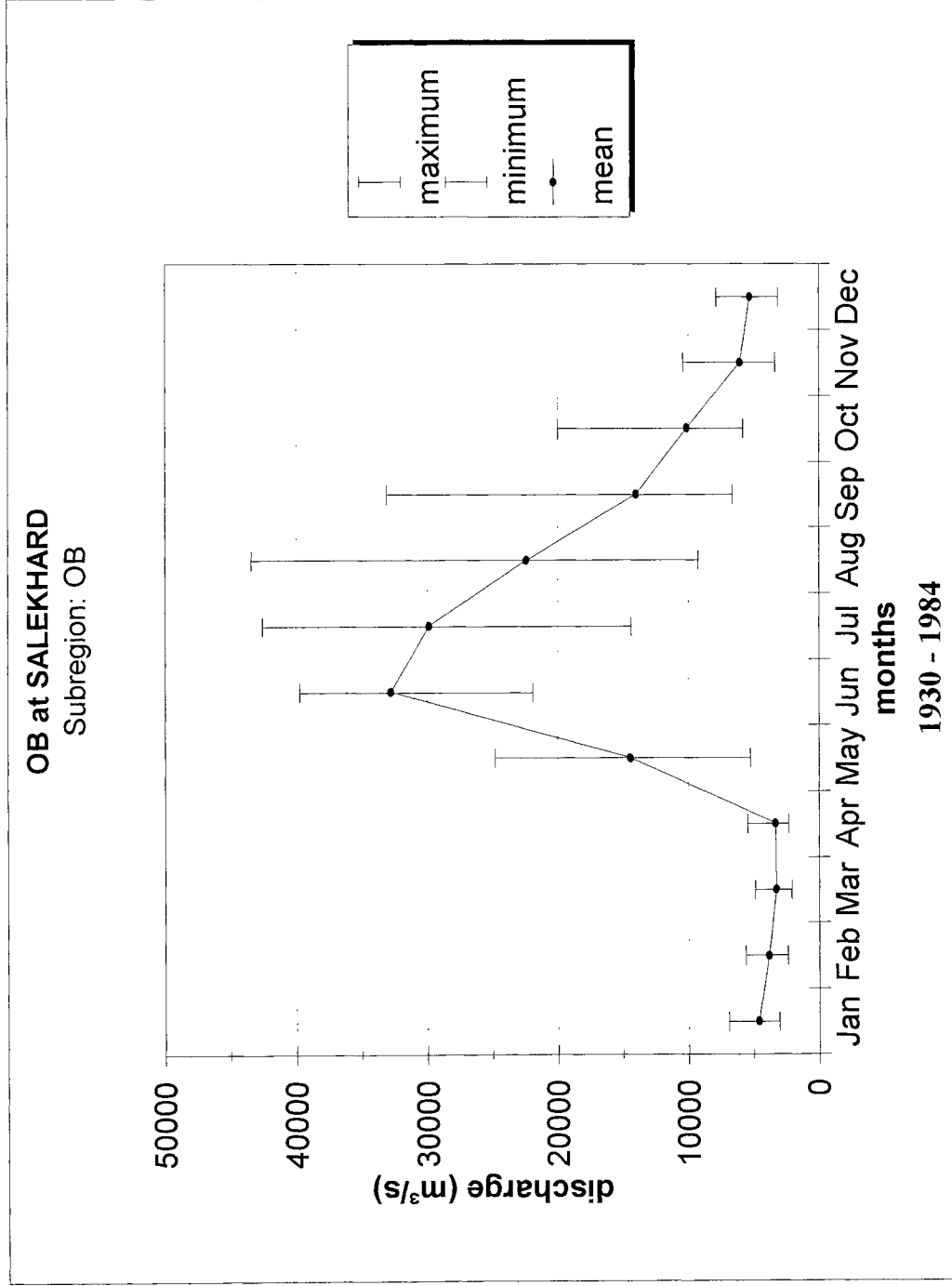


Figure 2 Comparison of Mean annual run-off to the Arctic Ocean in cubic kilometers per year from Aagaard and Carmack, 1989 and GRDC in this report (figures in parenthesis from Aagaard and Carmack). Only the nine largest rivers are shown (figure adapted from Aagaard and Carmack, 1989).

|           | Aagaard/Carmack    | GRDC               | DIFF               | %      |
|-----------|--------------------|--------------------|--------------------|--------|
|           | Km <sup>3</sup> /a | Km <sup>3</sup> /a | Km <sup>3</sup> /a |        |
| Mackenzie | 340                | 287                | 53                 | 15.59  |
| Kolyma    | 102                | 69                 | 33                 | 32.35  |
| Indigirka | 57                 | 50                 | 7                  | 12.28  |
| Lena      | 520                | 524                | -4                 | -0.77  |
| Yenisei   | 603                | 562                | 41                 | 6.80   |
| Ob        | 530                | 394                | 136                | 25.66  |
| Pechora   | 130                | 107                | 23                 | 17.69  |
| Dvina     | 110                | 104                | 6                  | 5.45   |
| Kotuy     | 105                | -                  | 105                | 100.00 |

# GLOBAL RUNOFF DATA CENTRE (GRDC)

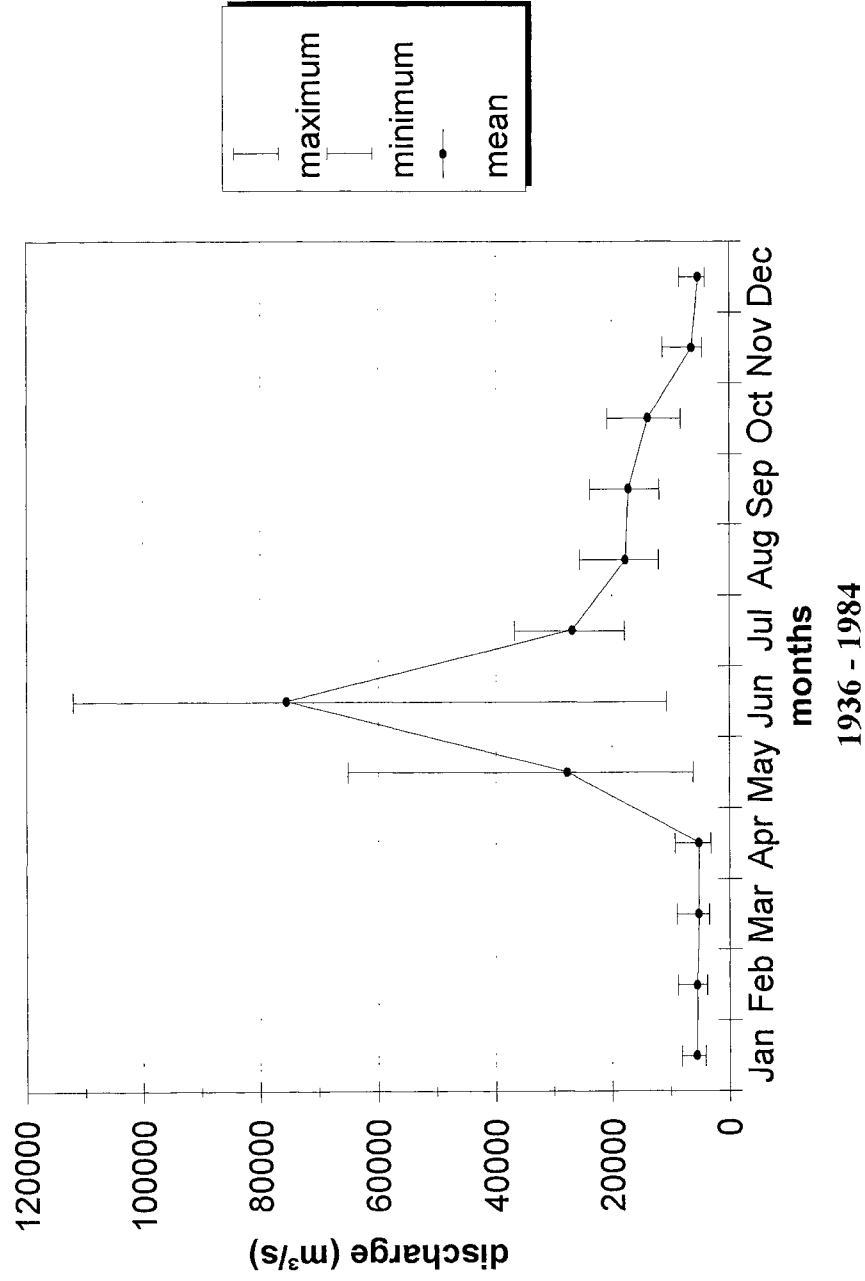


Flow Variability of the Ob River

Figure 3

GLOBAL RUNOFF DATA CENTRE (GRDC)

YENISEI at IGARKA  
Subregion: YENISEI



Flow Variability of the Yenisei River

Figure 4

## **7. Presentation of the ARDB**

A look at the maps demonstrates, that many of the GRDC-ACSYS stations are not close to the mouth of the respective rivers into the Arctic Sea. The reason for this is, that hydrological networks have been designed to serve operational hydrological purposes including practical issues of water resources management with a view of downstream effects of discharges from selected gauging station sites. Therefore, in many cases there has been no operational need to establish stations close to the mouth of the rivers. It must be also noted in this context, that discharge measurements in lowland areas with low flow velocities, meandering river courses and permafrost and icing conditions are extremely difficult. In addition, the coastal stations are problematic in access, operation and maintenance due to their remote locations, harsh climatic conditions and the river environment itself. The effect of tidal influences and shelf icing conditions on the discharge of the rivers is not known at the GRDC.

The following tables of overlapping time-series of GRDC-ACSYS stations demonstrate, that for Europe only the timespan 1971-1985 shows sufficient overlap for comparative hydrologic studies. The years of maximum overlap of time-series for Asia are 1976 - 1985 and for North America 1971-1990. To quantify freshwater flux into the Arctic Ocean it is desirable that for Europe, Asia and North America a common time-series is established.

Considering the difficulties to obtain data from the territory of the former Soviet Union for years subsequent to 1990, the compilation of a data set with a reference period 1970 - 1990 should be attempted. For several large rivers with long-term data series however, it is possible to perform comparative statistical analysis to obtain a clue as to the variability of the hydrological behaviour and changes in the water balance of selected rivers draining into the Arctic Ocean. These rivers may be selected from the tables given below. Recognizing, that the Mackenzie river should constitute a test case for Arctic hydrological processes as spelt out in the ACSYS Science Plan it is clear, that the presently available time series for the Mackenzie river (1966-1975) must be urgently updated and the missing values filled up.

The tables showing the compiled time-series of data give a first information also with regard to the size of the territory which contributes to the runoff in the Arctic Ocean.

The tables of missing values show, that the available records are fairly complete in most cases. From the tables it is possible to judge which time series should be completed for analysis and modelling purposes.

It must be noted, that most discharge data are available as Mean Monthly values with the exception of stations in North America, where Mean Daily data are available in the GRDC database. The expectation of the Initial Implementation Plan to archive Mean Daily discharges for all ACSYS stations cannot be met presently. It seems not realistic that this target can be met on a short-term (1 year) basis.

The data from Iceland are special in that they represent Mean Daily discharges of the *calculated natural flows* of rivers in Iceland.

## REFERENCES

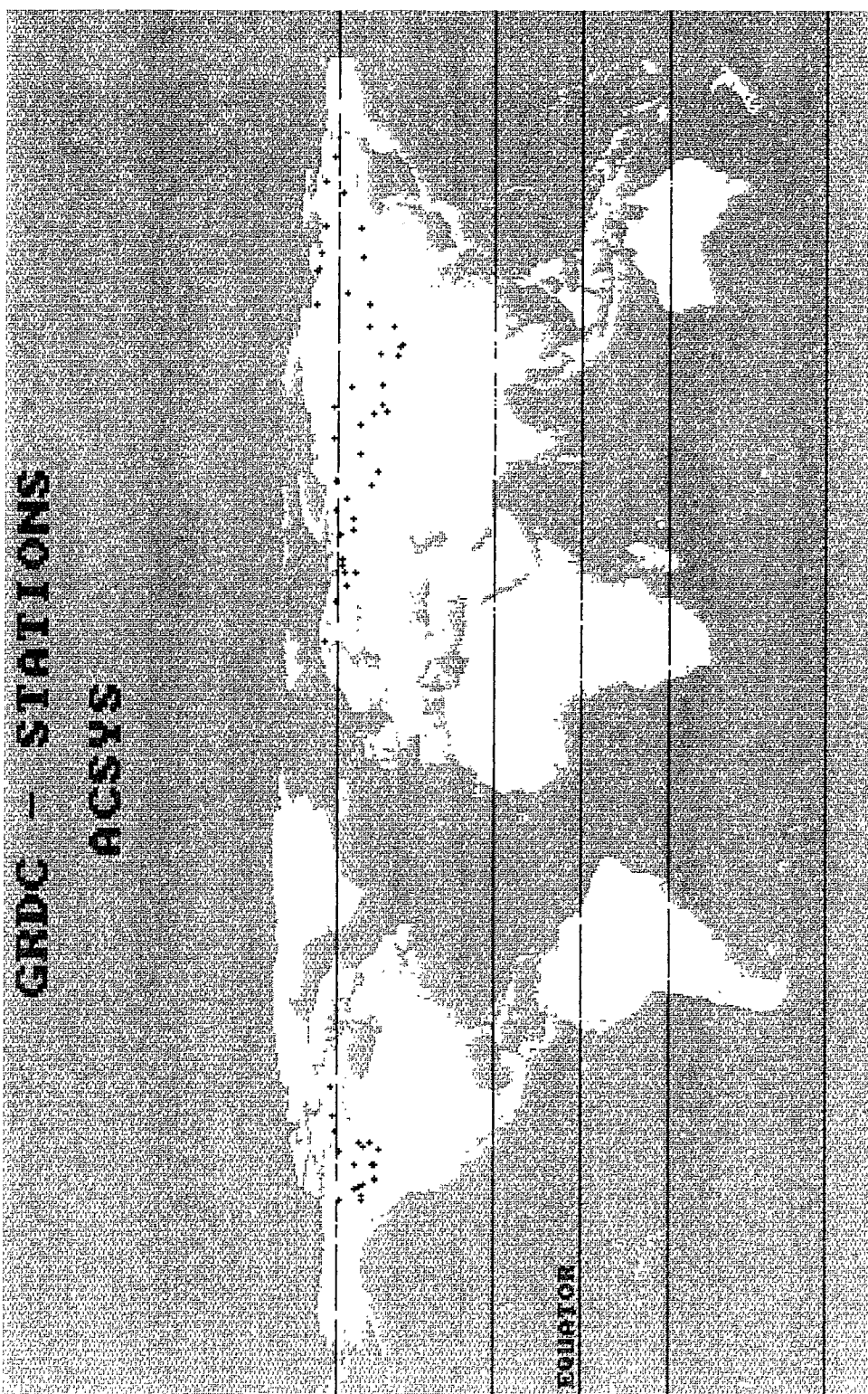
Aagaard, K. and E.C. Carmack, 1989: The role of sea ice and other fresh water in the arctic circulation. *J. Geophys. Res.*, 94, 14485-14498.

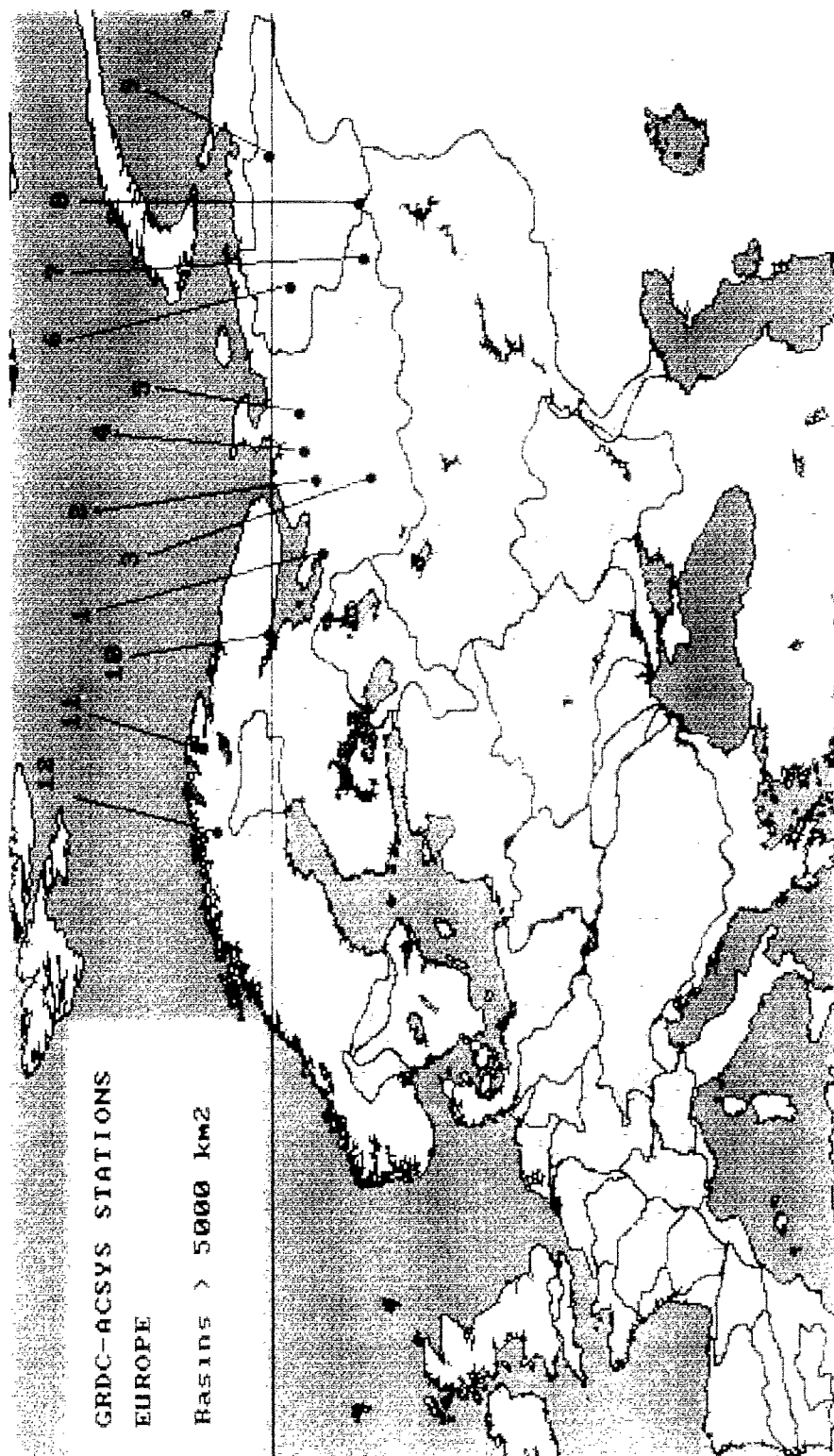
WCRP - 72, 1992: Scientific Concept of the Arctic Climate System Study (ACSYS). Report of the JSC Study Group on ACSYS, Bremerhaven, Germany, 10-12 June 1991 and London, U.K., 18-19 November 1991. WMO/TD-No. 486, 9/1992.

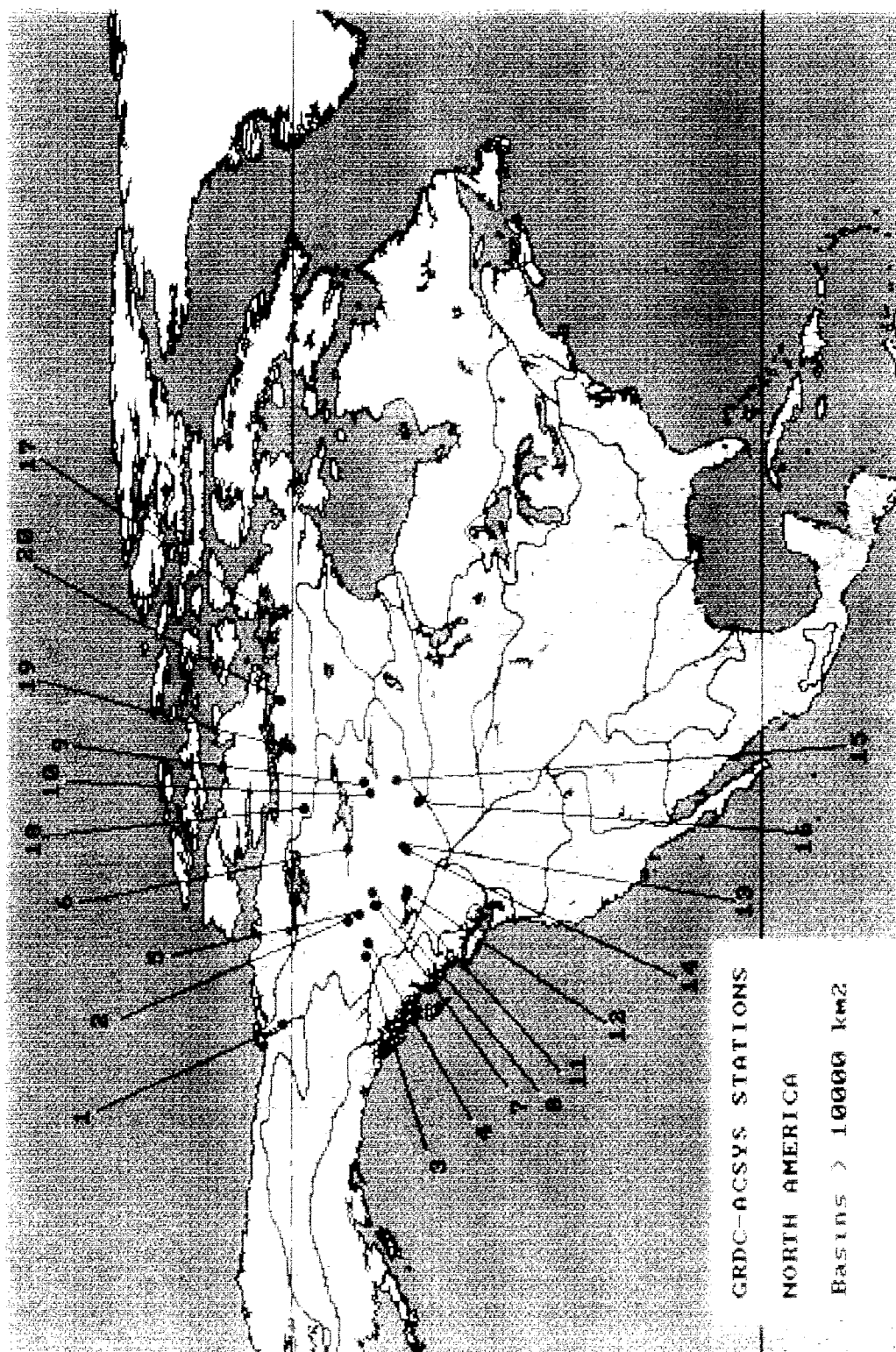
WCRP - 85, 1994: Arctic Climate System Study (ACSYS). Initial Implementation Plan. WMO/TD-No. 627, 9/1994.

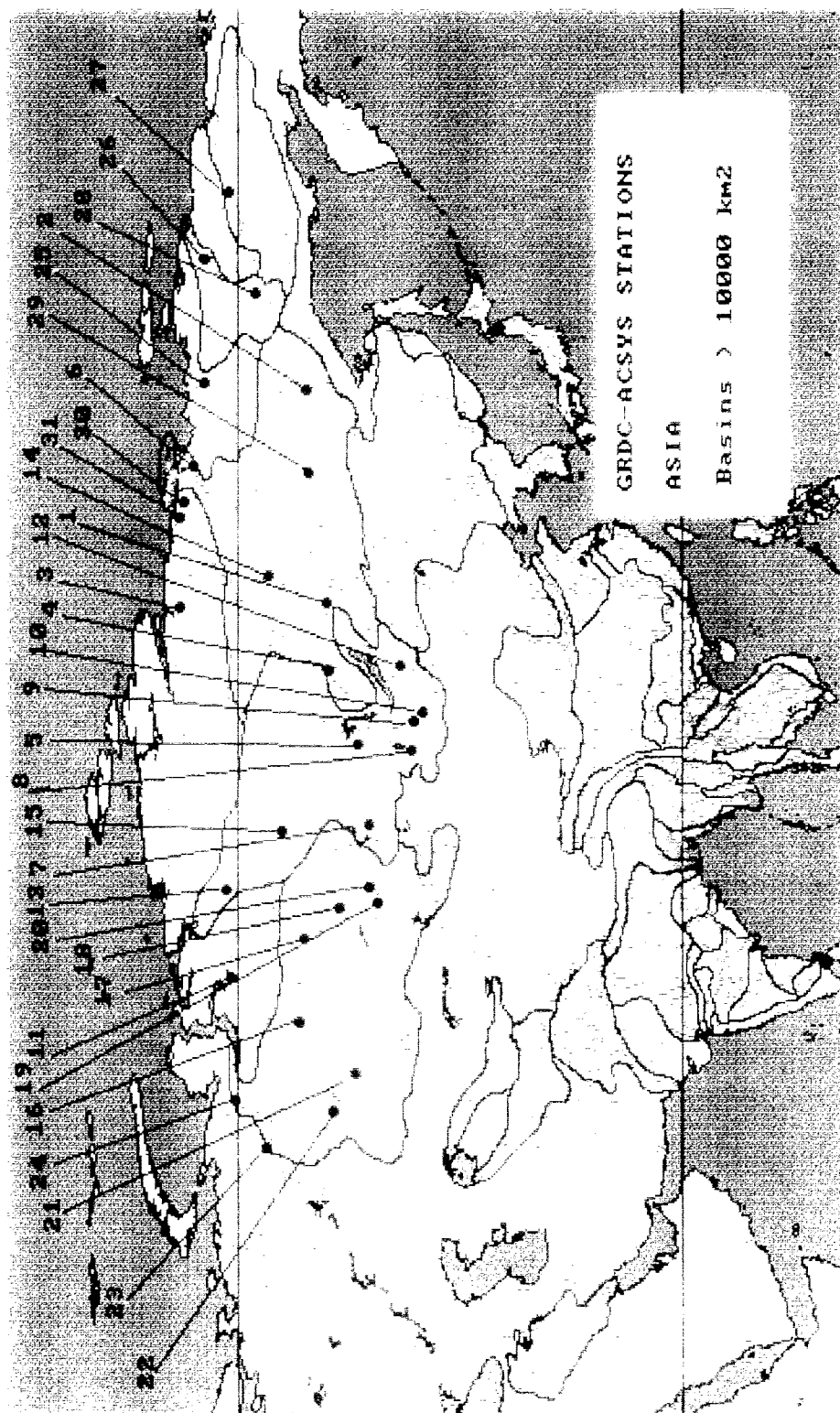
**MAPS AND TABLES OF THE  
ARCTIC RIVER DATABASE  
( ARDB )**

**STATUS: 30 MAY 1995**









# EUROPE

Overview of overlapping timeseries of GRDC-ACSYS Stations

| River                           | Station               | Time series | 1965 | 1984 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 | 2055 | 2060 | 2065 | 2070 | 2075 | 2080 | 2085 | 2090 | 2095 |
|---------------------------------|-----------------------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Onega                           | Porog                 | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Soiza                           | Soukhie Porogul       | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Northern Dvina(Severnaya Dvina) | Ust-Pnega             | 1881 1985   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Vaga                            | Flatievskaya          | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mud'yuga                        | Parakevevskaya        | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Pnega                           | Kulogory              | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mezen                           | Malonogorskaya        | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Pizhma                          | Borovaya              | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Pechora                         | Ust-Tsilma            | 1932 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Vytchegda                       | Malaya Kushba         | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Pechora                         | Yaksha                | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Usa                             | Adzva                 | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Iyema                           | Izvail                | 1978 1979   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Equi                            | Chukhlom              | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ena                             | Novoe                 | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Jena                            | Jena                  | 1979 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ura                             | Ura-Guba              | 1979 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Kola                            | Oktabrsky Railway, km | 1979 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Tana                            | Polmak                | 1912 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Eneelv                          | Stordalsvatn          | 1913 1988   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Vossa                           | Bulken                | 1892 1988   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Veisna                          | Unkervatn             | 1978 1983   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Kjerringa                       | Vassvatn              | 1917 1988   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Saiteiv                         | Junkerdselv           | 1938 1988   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lakselv                         | Mevatn                | 1978 1988   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Hvita i Borgarfirdi             | Kjalafoss             | 1951 1993   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Oelfusa                         | Selfoss               | 1950 1992   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bruara                          | Efsadalabru           | 1961 1991   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Thjorsa                         | Urridalafoss          | 1947 1993   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Joekulsa i Fjotsdal             | Holl                  | 1962 1991   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Joekulsa Vestari                | Goddalabru            | 1971 1991   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Diupa                           | Bru                   | 1968 1992   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Svarta                          | Ullarfoss             | 1932 1992   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Joekulsa a Fjollum              | Detfjoss              | 1939 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lagarfjot                       | Lagarfoss             | 1949 1993   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

# NORTH AMERICA

Overview of overlapping timeseries of GRDC-ACSYS Stations

| River               | Station                            | Time | series | 1880 | 1885 | 1890 | 1895 | 1900 | 1905 | 1910 | 1915 | 1920 | 1925 | 1930 | 1935 | 1940 | 1945 | 1950 | 1955 | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1995 |
|---------------------|------------------------------------|------|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Reynolds River      | below Highway No. 8                | 1973 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Snake River         | near The mouth                     | 1975 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weldon Creek        | near The mouth                     | 1978 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Carcajou River      | below Imperial River               | 1976 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Hyland River        | km 108.5 Nahanni Range Road        | 1976 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Root River          | near The mouth                     | 1974 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Indin River         | above Chalco Lake                  | 1977 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| South Nahanni River | above Clausen Creek                | 1966 | 1994   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Birch River         | Highway No. 7                      | 1974 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Hyland River        | near Lower Post                    | 1978 | 1989   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Dease River         | Outlet of Dease Lake               | 1978 | 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Kechika             | mouth                              | 1962 | 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Coal River          | At The mouth                       | 1978 | 1989   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Liard River         | Lower Crossing                     | 1960 | 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Liard River         | Fort Liard                         | 1942 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mackenzie River     | near Fort Providence               | 1966 | 1975   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Snowdrift River     | Outlet of Siltaza Lake             | 1976 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Marten River        | above Thoa River                   | 1977 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Muskwa              | near Fort Nelson                   | 1944 | 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Fort Nelson         | above Muskwa River                 | 1978 | 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Salt River          | below Peace Point Highway          | 1973 | 1980   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Slave River         | Fitzgerald                         | 1921 | 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Peace River         | Peace Point                        | 1966 | 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ingenika River      | above Swannell River               | 1978 | 1989   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Peace River         | Hudson Hope                        | 1949 | 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Halfway             | near Farrell Creek (Lower Station) | 1962 | 1983   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Pine                | East Pine                          | 1961 | 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Parship River       | above Misinchinka River            | 1978 | 1989   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Whitemud River      | near Dixonville                    | 1971 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Peace River         | Peace River                        | 1915 | 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Smoky River         | Watino                             | 1956 | 1988   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Heart River         | near Nampa                         | 1963 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Hartley Creek       | near Fort Mackay                   | 1975 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Sleepbank River     | near Fort McMurray                 | 1972 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Athabasca River     | below McMurray                     | 1966 | 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Hangingsone River   | Fort McMurray                      | 1965 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| West Prairie River  | near High Prairie                  | 1921 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Waskahgan River     | near The mouth                     | 1968 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Athabasca River     | Athabasca                          | 1952 | 1988   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Snake Indian River  | near The mouth                     | 1971 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Athabasca River     | near Jasper                        | 1913 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mileod River        | above Embarras River               | 1955 | 1988   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Wolf Creek          | Highway No. 16a                    | 1955 | 1988   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lobstick River      | near Sval                          | 1956 | 1986   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Pembina River       | near Entwistle                     | 1955 | 1988   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Firth River         | near The mouth                     | 1972 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Babbage River       | below Caribou Creek                | 1976 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Tree River          | near The mouth                     | 1968 | 1990   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Back                | below Deep Rose Lake               | 1966 | 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Coppermine River    | Point lake outlet                  | 1965 | 1992   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Burnside River      | near the mouth                     | 1976 | 1992   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ellice River        | near the mouth                     | 1971 | 1982   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Tree River          | near the mouth                     | 1968 | 1992   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Gordon River        | near the mouth                     | 1977 | 1992   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Big River           | above Egg River                    | 1975 | 1988   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Freshwater Creek    | near Cambridge Bay                 | 1970 | 1992   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

ASIA

Overview of overlapping timeseries of GRDC-ACSYS Stations

| River                 | Station            | Time series | 1880 | 1885 | 1890 | 1895 | 1900 | 1905 | 1910 | 1915 | 1920 | 1925 | 1930 | 1935 | 1940 | 1945 | 1950 | 1955 | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1995 |
|-----------------------|--------------------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vitim                 | Bodaibo            | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Maya                  | Chabda             | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Zhuva                 | Svelly             | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Anabar                | Saskylakh          | 1966 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Kempendai             | Kempendai          | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Kirenga               | Shorokhovo         | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Timpton               | Nagorny            | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Iya                   | Tulun              | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lena                  | Kusur              | 1935 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ebetem                | Ebetem             | 1980 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Kenkeme               | Voroy Stanok       | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Tuba                  | Bugurtak           | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Chaplakhai            | mouth              | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Radio-Uryete          | near The mouth     | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Podgornyi             | near The mouth     | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Buor-Iuryakh          | Kudusun            | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Malaya Cherepanikha   | Tube               | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Shestakovka           | Kamyrdagystakh     | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ider                  | Tosontsengel       | 1978 1982   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Delgermuren           | Muren              | 1976 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Khoit Tamir           | Ikh Tamir          | 1978 1982   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Selenga               | Chults             | 1976 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Orkhon                | Orkhon             | 1976 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Kharza                | Barun Kharza       | 1978 1982   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Tola                  | Ulan-Bator         | 1976 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Tereiji               | Tereiji            | 1978 1982   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Khara-Murun           | Murno              | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bolshaya Rechka       | Possolskaya        | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Pur                   | Samburg            | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Gravylka              | Igarika            | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Yenisai               | Igarika            | 1936 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Us                    | Ust-Zolotaya       | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Markha                | Malyskai           | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Syda                  | Oifok              | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Sizim                 | Sizim              | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Podkamennaya Tunguska | Kuzmovka           | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Nizhnaya Tunguska     | Podvolshino        | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Chernaya              | Chernoye II        | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mikhanskij            | Velmo 2            | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bolshoi Yugan         | Ugut               | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Tym                   | Napas              | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Tom                   | Tomsk              | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Peschanaya            | Tochilhoe          | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mayma                 | Mayma              | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Biya                  | Biysk              | 1895 1985   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Akkem                 | Akkem              | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Tom                   | Novokuznetsk       | 1894 1985   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Uss                   | Mezhdourechensk    | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ishim                 | Petropavlovsk      | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ishim                 | Ishimograd         | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ulba                  | Ulba Perevalochaya | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Levaya Berezovka      | Sredigorne         | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bergamak              | Pizany             | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Aremzyanka            | Chukmanka          | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Uy                    | Stepnoe            | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Tura                  | Tumen              | 1896 1985   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lobva                 | Lobva              | 1969 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Northern Sosva        | Sosva              | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ob                    | Salekhard          | 1930 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Reshetka              | Novoalekseevskoe   | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Yalynka               | Kaltukova          | 1978 1987   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ota                   | Yaguchi            | 1978 1986   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Yodo                  | Hirakata           | 1978 1988   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

table 1

# ASIA

Overview of overlapping timeseries of GRDC-ACSYS Stations

table 2

| River     | Station                             | Time series | 1880 | 1885 | 1890 | 1895 | 1900 | 1905 | 1910 | 1915 | 1920 | 1925 | 1930 | 1935 | 1940 | 1945 | 1950 | 1955 | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1995 |
|-----------|-------------------------------------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Shingu    | Oga                                 | 1986 1986   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Kiso      | Imawatari                           | 1978 1988   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Tenryu    | Kashima                             | 1986 1986   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Fuji      | Kitanatsuno                         | 1986 1986   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ara       | Oashibashi                          | 1978 1988   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Tone      | Kuribashi                           | 1986 1986   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Tone      | Kuribashi                           | 1938 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Abukuma   | Iwanuma                             | 1986 1986   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Kitakami  | Torie                               | 1986 1986   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Yana      | Dzanghky                            | 1938 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Sugoy     | 3 2km Downstream of Omchikchan      | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Indigirka | Vorontsovo                          | 1937 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Kolyma    | Sredne-Kolymsk                      | 1927 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Nera      | Ala-Chubuk                          | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Anguema   | mouth of Shoumny Brook              | 1944 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Anga      | Buyaga                              | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Olenek    | 8km Upstr of mouth of Pur River     | 1952 1963   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Olenek    | 7 5km Downstr of mouth of River Pur | 1965 1984   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

# GLOBAL RUNOFF DATA CENTRE (GRDC) ACSYS-STATIONS

| EUROPE |                | Kola                        | (incl. Northern District of Russian Federation) |          |           |            |           |           | table 1 |  |
|--------|----------------|-----------------------------|-------------------------------------------------|----------|-----------|------------|-----------|-----------|---------|--|
| No.    | River          | Station                     | Area (km²)                                      | Latitude | Longitude | first rec. | last rec. | day/month |         |  |
| 1      | Onega          | Porog                       | 55770                                           | N 63.80  | E 38.27   | 1965       | 1984      | M         |         |  |
|        | Solza          | Soukhie Porogui             | 1190                                            | N 64.31  | E 39.48   | 1978       | 1987      | D         |         |  |
| 2      | Northern Dvina | Ust-Pinega                  | 348000                                          | N 64.10  | E 42.17   | 1881       | 1985      | M         |         |  |
| 3      | Vaga           | Filaievskaya                | 13200                                           | N 61.23  | E 42.25   | 1965       | 1984      | M         |         |  |
|        | Mud'yuga       | Patrakeyevskaya             | 305                                             | N 64.96  | E 40.50   | 1978       | 1987      | D         |         |  |
| 4      | Pinega         | Kulogory                    | 36700                                           | N 64.71  | E 43.66   | 1978       | 1987      | D         |         |  |
| 5      | Mezen          | Malonisogorskaya            | 56400                                           | N 64.95  | E 45.67   | 1965       | 1984      | M         |         |  |
|        | Pizhma         | Borovaya                    | 4890                                            | N 65.33  | E 51.81   | 1978       | 1987      | D         |         |  |
| 6      | Pechora        | Ust-Tsilma                  | 248000                                          | N 65.47  | E 52.25   | 1932       | 1984      | M         |         |  |
| 7      | Vytchegda      | Malaya Kushba               | 26500                                           | N 61.67  | E 53.73   | 1965       | 1984      | M         |         |  |
| 8      | Pechora        | Yaksha                      | 9620                                            | N 61.86  | E 56.66   | 1978       | 1987      | D         |         |  |
| 9      | Usa            | Adzva                       | 54700                                           | N 66.65  | E 59.10   | 1965       | 1984      | M         |         |  |
|        | Iyema          | Izvail                      | 1150                                            |          |           | 1978       | 1987      | D         |         |  |
|        | Egul           | Chukhlom                    | 123                                             |          |           | 1978       | 1987      | D         |         |  |
|        | Ema            | Novoe                       | 179                                             |          |           | 1978       | 1987      | D         |         |  |
|        |                |                             |                                                 |          |           |            |           |           |         |  |
|        | Jena           | Jena                        | 1600                                            | N 67.58  | E 30.84   | 1979       | 1987      | D         |         |  |
|        | Ura            | Ura-Guba                    | 1020                                            | N 69.41  | E 32.78   | 1979       | 1987      | D         |         |  |
|        | Kola           | Oktaibrsky Railway, km 1429 | 3780                                            | N 68.88  | E 33.05   | 1965       | 1984      | M         |         |  |
| 10     | Umba           | Paialka                     | 6250                                            | N 66.64  | E 34.08   | 1979       | 1987      | D         |         |  |
|        |                |                             |                                                 |          |           |            |           |           |         |  |

# GLOBAL RUNOFF DATA CENTRE (GRDC) ACSYS-STATIONS

| EUROPE |           | Norway        |                         | table 2  |           |            |           |           |
|--------|-----------|---------------|-------------------------|----------|-----------|------------|-----------|-----------|
| No.    | River     | Station       | Area (km <sup>2</sup> ) | Latitude | Longitude | first rec. | last rec. | day/month |
| 11     | Tana      | Polmak        | 14005                   | N 70.07  | E 28.05   | 1912       | 1987      | M         |
|        | Etneelv   | Stordalsvatn  | 134                     | N 59.68  | E 6.02    | 1913       | 1988      | M         |
|        | Vossa     | Bulken        | 1071                    | N 60.63  | E 6.28    | 1892       | 1988      | M         |
|        | Vefsna    | Unkervatn     | 756                     | N 65.50  | E 14.22   | 1978       | 1983      | D         |
|        | Kjerringa | Vassvatn      | 18,5                    | N 66.40  | E 13.18   | 1917       | 1988      | M         |
|        | Saltelv   | Junkerdalselv | 426                     | N 66.82  | E 15.43   | 1938       | 1988      | M         |
|        | Lakselv   | Mevatn        | 178                     | N 69.23  | E 17.78   | 1978       | 1983      | D         |
|        | Altaelv   | Masi          | 5693                    | N 69.42  | E 23.63   | 1978       | 1983      | D         |
| 12     |           |               |                         |          |           |            |           |           |

# GLOBAL RUNOFF DATA CENTRE (GRDC) ACSYS-STATIONS

| EUROPE |                      | Iceland      |                         | table 3  |           |            |           |           |
|--------|----------------------|--------------|-------------------------|----------|-----------|------------|-----------|-----------|
| No.    | River                | Station      | Area (km <sup>2</sup> ) | Latitude | Longitude | first rec. | last rec. | day/month |
|        | Hvita i Borgarfirdi  | Kljafoss     | 1685                    | N 64.69  | W 21.42   | 1951       | 1993      | M/D       |
|        | Oefusa               | Selfoss      | 5760                    | N 63.94  | W 21.01   | 1950       | 1992      | M/D       |
|        | Bruara               | Efstadalsbru | 225                     | N 64.26  | W 20.52   | 1961       | 1991      | M/D       |
|        | Thjorsa              | Urriðafoss   | 7200                    | N 63.93  | W 20.60   | 1947       | 1993      | M/D       |
|        | Joekulsa i Fjotssdal | Holl         | 575                     | N 64.98  | W 15.09   | 1962       | 1991      | M/D       |
|        | Joekulsa Vestari     | Goddalabru   | 799                     | N 65.33  | W 19.09   | 1971       | 1991      | M/D       |
|        | Djupa                | Bru          | 260                     | N 63.95  | W 17.65   | 1968       | 1992      | M/D       |
|        | Svarta               | Ullarfoss    | 390                     | N 65.49  | W 19.39   | 1932       | 1992      | M/D       |
|        | Joekulsa a Fjollum   | Dettifoss    | 7000                    | N 66.03  | W 16.45   | 1939       | 1984      | M/D       |
|        | Lagarfjot            | Lagarfoss    | 2800                    | N 65.50  | W 14.37   | 1949       | 1993      | M/D       |

# GLOBAL RUNOFF DATA CENTRE (GRDC) ACSYS-STATIONS

| NORTH AMERICA |                     | Mackenzie                   | table 1    |          |           |            |           |           |
|---------------|---------------------|-----------------------------|------------|----------|-----------|------------|-----------|-----------|
| No.           | River               | Station                     | Area (km²) | Latitude | Longitude | first rec. | last rec. | day/month |
|               | Rengleg River       | below Highway No. 8         | 1310       | N 67.75  | W 133.85  | 1973       | 1990      | D         |
|               | Snake River         | near The mouth              | 8910       | N 65.97  | W 134.02  | 1975       | 1990      | D         |
|               | Weldon Creek        | near The mouth              | 847        | N 66.38  | W 132.65  | 1978       | 1990      | D         |
|               | Carcajou River      | below Imperial River        | 6860       | N 65.28  | W 127.68  | 1976       | 1990      | D         |
| 1             | Mackenzie River     | Norman Wells                | 1570000    | N 65.28  | W 126.85  | 1943       | 1990      | D         |
|               | Hyland River        | km 108.5 Nahanni Range Road | 2150       | N 61.48  | W 128.23  | 1976       | 1990      | D         |
|               | Root River          | near The mouth              | 9840       | N 62.47  | W 123.42  | 1974       | 1990      | D         |
|               | Indin River         | above Chalco Lake           | 1790       | N 64.40  | W 115.03  | 1977       | 1990      | D         |
| 2             | South Nahanni River | above Clausen Creek         | 33400      | N 61.25  | W 124.03  | 1969       | 1990      | D         |
|               | Birch River         | Highway No. 7               | 542        | N 61.33  | W 122.08  | 1974       | 1990      | D         |
|               | Hyland River        | near Lower Post             | 9450       | N 59.95  | W 128.15  | 1978       | 1989      | D         |
|               | Dease River         | Outlet of Dease Lake        | 1520       | N 58.80  | W 130.08  | 1978       | 1984      | D         |
| 3             | Kechika             | mouth                       | 22700      | N 59.62  | W 127.31  | 1962       | 1984      | M         |
|               | Coal River          | At The mouth                | 9190       | N 59.68  | W 136.95  | 1978       | 1989      | D         |
| 4             | Liard River         | Lower Crossing              | 104000     | N 59.42  | W 126.10  | 1944       | 1990      | D         |
| 5             | Liard River         | Fort Liard                  | 222000     | N 60.25  | W 123.48  | 1942       | 1990      | D         |
| 6             | Mackenzie River     | near Fort Providence        | 970000     | N 61.27  | W 117.53  | 1958       | 1978      | D         |
|               | Snowdrift River     | Outlet of Siltaza Lake      | 6030       | N 62.17  | W 109.85  | 1976       | 1990      | D         |
|               | Marten River        | above Thoa River            | 736        | N 60.60  | W 108.97  | 1977       | 1990      | D         |
| 7             | Muskwa              | near Fort Nelson            | 20300      | N 58.79  | W 122.66  | 1944       | 1984      | M         |
| 8             | Fort Nelson         | above Muskwa River          | 22800      | N 58.67  | W 122.64  | 1978       | 1984      | M         |
|               | Salt River          | below Peace Point Highway   | 821        | N 59.83  | W 111.97  | 1973       | 1980      | D         |
| 9             | Slave River         | Fitzgerald                  | 606000     | N 59.87  | W 111.58  | 1921       | 1990      | D         |
| 10            | Peace River         | Peace Point                 | 293000     | N 59.12  | W 112.43  | 1959       | 1990      | D         |

# GLOBAL RUNOFF DATA CENTRE (GRDC) ACSYS-STATIONS

| NORTH AMERICA |                     | Mackenzie                          |                         |          |           |            |           |           | table 2 |  |
|---------------|---------------------|------------------------------------|-------------------------|----------|-----------|------------|-----------|-----------|---------|--|
| No.           | River               | Station                            | Area (km <sup>2</sup> ) | Latitude | Longitude | first rec. | last rec. | day/month |         |  |
| 11            | Ingenika River      | above Swannell River               | 4200                    | N 56.72  | W 125.10  | 1978       | 1989      | D         |         |  |
|               | Peace River         | Hudson Hope                        | 70200                   | N 56.03  | W 121.90  | 1949       | 1984      | M         |         |  |
|               | Halfway             | near Farrell Creek (Lower Station) | 9400                    | N 56.23  | W 121.48  | 1962       | 1983      | M         |         |  |
|               | Pine                | East Pine                          | 12100                   | N 55.72  | W 121.21  | 1961       | 1984      | M         |         |  |
|               | Parsnip River       | above Misinchinka River            | 4900                    | N 55.07  | W 122.93  | 1978       | 1989      | D         |         |  |
|               | Whitemud River      | near Dixonville                    | 2010                    | N 56.50  | W 117.65  | 1971       | 1990      | D         |         |  |
|               | Peace River         | Peace River                        | 186000                  | N 56.25  | W 117.32  | 1915       | 1990      | D         |         |  |
|               | Smoky River         | Watino                             | 50300                   | N 55.72  | W 117.62  | 1915       | 1990      | D         |         |  |
|               | Heart River         | near Nampa                         | 1960                    | N 56.05  | W 117.12  | 1963       | 1990      | D         |         |  |
|               | Hartley Creek       | near Fort Mackay                   | 357                     | N 57.25  | W 111.45  | 1975       | 1990      | D         |         |  |
|               | Steepbank River     | near Fort McMurray                 | 1370                    | N 57.00  | W 111.40  | 1972       | 1990      | D         |         |  |
|               | Athabasca River     | below McMurray                     | 133000                  | N 56.78  | W 111.40  | 1957       | 1990      | D         |         |  |
|               | Hangingsstone River | Fort McMurray                      | 914                     | N 56.70  | W 111.35  | 1965       | 1990      | D         |         |  |
|               | West Prairie River  | near High Prairie                  | 1163                    | N 55.43  | W 116.48  | 1921       | 1990      | D         |         |  |
|               | Waskahigan River    | near The mouth                     | 1040                    | N 54.75  | W 117.20  | 1968       | 1990      | D         |         |  |
|               | Athabasca River     | Athabasca                          | 74600                   | N 54.72  | W 113.29  | 1913       | 1990      | D         |         |  |
| 16            | Snake Indian River  | near The mouth                     | 1580                    | N 53.15  | W 118.02  | 1971       | 1990      | D         |         |  |
|               | Athabasca River     | near Jasper                        | 3900                    | N 52.90  | W 118.05  | 1913       | 1990      | D         |         |  |
|               | McLeod River        | above Embarras River               | 2560                    | N 53.47  | W 116.62  | 1954       | 1990      | D         |         |  |
|               | Wolf Creek          | Highway No. 16a                    | 829                     | N 53.60  | W 116.27  | 1954       | 1990      | D         |         |  |
|               | Lobstick River      | near Styal                         | 1570                    | N 53.61  | W 115.11  | 1954       | 1986      | D         |         |  |
|               | Pembina River       | near Entwistle                     | 4430                    | N 53.60  | W 115.00  | 1914       | 1990      | D         |         |  |

# GLOBAL RUNOFF DATA CENTRE (GRDC) ACSYS-STATIONS

| NORTH AMERICA |                  | Canada (Arctic Ocean) |                         | table 3  |           |            |           |           |
|---------------|------------------|-----------------------|-------------------------|----------|-----------|------------|-----------|-----------|
| No.           | River            | Station               | Area (km <sup>2</sup> ) | Latitude | Longitude | first rec. | last rec. | day/month |
|               | Firth River      | near the mouth        | 5710                    | N 69.32  | W 139.57  | 1972       | 1990      | D         |
|               | Babbage River    | below Caribou Creek   | 1510                    | N 68.82  | W 138.67  | 1976       | 1990      | D         |
|               | Tree River       | near the mouth        | 5960                    | N 67.63  | W 111.88  | 1968       | 1990      | D         |
| 17            | Back             | below Deep Rose Lake  | 98200                   | N 66.08  | W 96.50   | 1966       | 1984      | M         |
| 18            | Coppermine River | Point Lake Outlet     | 19300                   | N 65.24  | W 114.00  | 1965       | 1992      | D         |
| 19            | Burnside River   | near the mouth        | 16800                   | N 66.44  | W 108.49  | 1976       | 1992      | D         |
| 20            | Ellice River     | near the mouth        | 16900                   | N 67.42  | W 104.08  | 1971       | 1992      | D         |
|               | Tree River       | near the mouth        | 5810                    | N 67.38  | W 111.54  | 1968       | 1992      | D         |
|               | Gordon River     | near the mouth        | 1530                    | N 66.48  | W 107.06  | 1977       | 1992      | D         |
|               | Big River        | above Egg River       | 3640                    | N 72.29  | W 123.24  | 1975       | 1988      | D         |
|               | Freshwater Creek | near Cambridge Bay    | 1490                    | N 69.07  | W 104.59  | 1970       | 1992      | D         |
|               |                  |                       |                         |          |           |            |           |           |

# GLOBAL RUNOFF DATA CENTRE (GRDC) ACSYS-STATIONS

| ASIA |                     | LENA           |                         |          |           |            |           | table 1   |  |
|------|---------------------|----------------|-------------------------|----------|-----------|------------|-----------|-----------|--|
| No.  | River               | Station        | Area (km <sup>2</sup> ) | Latitude | Longitude | first rec. | last rec. | day/month |  |
| 1    | Vitim               | Bodaibo        | 186000                  | N 57.90  | E 114.25  | 1965       | 1984      | M         |  |
| 2    | Maya                | Chabda         | 165000                  | N 59.75  | E 134.75  | 1965       | 1984      | M         |  |
|      | Zhuya               | Svetly         | 4790                    | N 58.44  | E 116.14  | 1978       | 1987      | D         |  |
| 3    | Anabar              | Saskylakh      | 78800                   | N 71.98  | E 113.95  | 1966       | 1984      | M         |  |
|      | Kempendai           | Kempendai      | 1290                    | N 61.91  | E 118.68  | 1978       | 1987      | D         |  |
| 4    | Kirenga             | Shorokhovo     | 46500                   | N 57.67  | E 108.07  | 1965       | 1984      | M         |  |
|      | Timpton             | Nagorny        | 613                     | N 55.98  | E 124.75  | 1978       | 1987      | D         |  |
| 5    | Iya                 | Tulun          | 14500                   | N 54.77  | E 100.65  | 1965       | 1984      | M         |  |
| 6    | Lena                | Kusur          | 2430000                 | N 70.70  | E 127.65  | 1935       | 1984      | M         |  |
|      | Ebitiem             | Ebetem         | 1000                    | N 70.36  | E 127.95  | 1980       | 1987      | D         |  |
|      | Kenkeme             | Vtoroy Stanok  | 3550                    | N 62.06  | E 129.03  | 1978       | 1987      | D         |  |
| 7    | Tuba                | Bugurtak       | 31800                   | N 53.77  | E 92.77   | 1965       | 1984      | D         |  |
|      | Chaptakhai          | mouth          | 28.4                    |          |           | 1978       | 1987      | D         |  |
|      | Radio-Uruyete       | near the mouth | 22.8                    |          |           | 1978       | 1987      | D         |  |
|      | Podgornyi           | near the mouth | 20.3                    |          |           | 1978       | 1987      | D         |  |
|      | Buor-Iuryakh        | Kujdusun       | 743                     |          |           | 1978       | 1987      | D         |  |
|      | Malaya Cherepanikha | Tiube          | 469                     |          |           | 1978       | 1987      | D         |  |
|      | Shestakovka         | Kamyrdagystakh | 170                     |          |           | 1978       | 1987      | D         |  |

# GLOBAL RUNOFF DATA CENTRE (GRDC) ACSYS-STATIONS

| ASIA |                       | Yenisei      | (incl. Lake Baikal & Angara) |          |           |            |           | table 2   |  |
|------|-----------------------|--------------|------------------------------|----------|-----------|------------|-----------|-----------|--|
| No.  | River                 | Station      | Area (km <sup>2</sup> )      | Latitude | Longitude | first rec. | last rec. | day/month |  |
|      | Ider                  | Tosontsengel | 8012                         | N 48.73  | E 98.28   | 1978       | 1982      | D         |  |
| 8    | Delgermuren           | Muren        | 16300                        | N 49.58  | E 100.13  | 1976       | 1984      | M         |  |
|      | Khoit Tamir           | Ikh Tamir    | 2993                         | N 47.50  | E 101.25  | 1978       | 1982      | D         |  |
| 9    | Selenga               | Chutic       | 92300                        | N 49.37  | E 102.83  | 1976       | 1984      | M         |  |
| 10   | Orkhon                | Orkhon       | 23600                        | N 48.65  | E 103.57  | 1976       | 1984      | M         |  |
|      | Kharaa                | Barun Kharaa | 9580                         | N 48.92  | E 106.07  | 1978       | 1982      | D         |  |
|      | Tola                  | Ulan-Bator   | 6300                         | N 47.90  | E 106.92  | 1976       | 1984      | M         |  |
|      | Terej                 | Terej        | 1232                         | N 48.05  | E 107.42  | 1978       | 1982      | D         |  |
|      | Khara-Murin           | Murino       | 1130                         | N 51.36  | E 104.31  | 1978       | 1987      | D         |  |
|      | Bolshaya Rechka       | Possolskaya  | 565                          | N 51.76  | E 106.44  | 1978       | 1987      | D         |  |
| 11   | Pur                   | Samburg      | 95100                        | N 67.08  | E 78.15   | 1965       | 1984      | M         |  |
|      |                       |              |                              |          |           |            |           |           |  |
|      | Uda                   | Alygdzher    | 4980                         | N 98.21  | E 98.21   | 1979       | 1979      | D         |  |
| 12   | Khilok                | Maleta       | 25700                        | N 50.77  | E 108.25  | 1965       | 1984      | M         |  |
|      | Olkha                 | Olkha        | 590                          | N 52.10  | E 104.03  | 1978       | 1987      | D         |  |
|      |                       |              |                              |          |           |            |           |           |  |
|      | Graviyka              | Igarka       | 323                          | N 67.51  | E 86.55   | 1978       | 1987      | D         |  |
| 13   | Yenisei               | Igarka       | 2440000                      | N 67.48  | E 86.50   | 1936       | 1984      | M         |  |
|      | Us                    | Ust-Zolotaya | 6110                         | N 52.03  | E 92.66   | 1978       | 1987      | D         |  |
| 14   | Markha                | Malykai      | 89600                        | N 63.43  | E 117.05  | 1965       | 1984      | M         |  |
|      | Syda                  | Otrok        | 1480                         | N 54.33  | E 92.50   | 1978       | 1987      | D         |  |
|      | Sizim                 | Sizim        | 867                          | N 51.36  | E 95.96   | 1978       | 1987      | D         |  |
| 15   | Podkamennaya Tunguska | Kuzmovka     | 218000                       | N 62.22  | E 92.09   | 1965       | 1984      | M         |  |
|      | Nizhnaya Tunguska     | Podvoloshino | 8270                         | N 58.28  | E 108.41  | 1978       | 1987      | D         |  |
|      | Chernaya              | Chernoye II  | 301                          |          |           | 1978       | 1987      | D         |  |
|      | Mikhanskij            | Velmo 2      | 32.3                         |          |           | 1978       | 1987      | D         |  |

# GLOBAL RUNOFF DATA CENTRE (GRDC) ACSYS-STATIONS

| No. | ASIA             | Ob                  | (incl. Irtysh & Tobol)  |          |           |            | table 3   |           |  |
|-----|------------------|---------------------|-------------------------|----------|-----------|------------|-----------|-----------|--|
|     | River            | Station             | Area (km <sup>2</sup> ) | Latitude | Longitude | first rec. | last rec. | day/month |  |
| 16  | Bolshoi Yugan    | Ugut                | 22100                   | N 60.32  | E 74.12   | 1965       | 1984      | M         |  |
| 17  | Tym              | Napas               | 24500                   | N 59.90  | E 81.92   | 1965       | 1984      | M         |  |
| 18  | Tom              | Tomsk               | 57000                   | N 56.58  | E 84.87   | 1965       | 1984      | M         |  |
|     | Peschanaya       | Tochilnoe           | 4720                    | N 52.18  | E 85.18   | 1978       | 1987      | D         |  |
|     | Mayma            | Mayma               | 780                     | N 52.00  | E 85.85   | 1978       | 1987      | D         |  |
| 19  | Biya             | Biysk               | 36900                   | N 52.52  | E 85.27   | 1895       | 1985      | M         |  |
|     | Akkem            | Akkem               | 78,9                    | N 50.33  | E 86.91   | 1978       | 1987      | D         |  |
| 20  | Tom              | Novokuznetsk        | 29800                   | N 53.75  | E 87.10   | 1894       | 1985      | M         |  |
|     | Usa              | Mezhdourechensk     | 3320                    | N 53.64  | E 88.10   | 1978       | 1987      | D         |  |
| 21  | Ishim            | Petropalvlovsk      | 118000                  | N 54.97  | E 69.12   | 1965       | 1984      | M         |  |
|     | Ishim            | Tselinograd         | 7400                    | N 51.11  | E 71.46   | 1978       | 1987      | D         |  |
|     | Ulba             | Ulba Perevalochnaya | 4900                    | N 49.93  | E 82.83   | 1965       | 1984      | M         |  |
|     | Levaya Berezovka | Sredigorne          | 251                     |          |           | 1978       | 1987      | D         |  |
|     | Bergamak         | Pjazany             | 371                     |          |           | 1978       | 1987      | D         |  |
|     | Aremzyanka       | Chukmanka           | 478                     |          |           | 1978       | 1987      | D         |  |
|     | Uy               | Stepnoe             | 3600                    | N 54.13  | E 60.48   | 1978       | 1987      | D         |  |
| 22  | Tura             | Tiumen              | 58500                   | N 57.15  | E 65.53   | 1896       | 1985      | M         |  |
|     | Lobva            | Lobva               | 2940                    | N 59.05  | E 60.26   | 1969       | 1984      | M         |  |
| 23  | Northern Sosva   | Sosva               | 65200                   | N 63.67  | E 61.88   | 1965       | 1984      | M         |  |
| 24  | Ob               | Salekhard           | 2949998                 | N 66.57  | E 66.53   | 1930       | 1984      | M         |  |
|     | Reshetka         | Novoalekseevskoe    | 32                      |          |           | 1978       | 1987      | D         |  |
|     | Yalynka          | Kaltiukova          | 62,6                    |          |           | 1978       | 1987      | D         |  |

# GLOBAL RUNOFF DATA CENTRE (GRDC) ACSYS-STATIONS

| ASIA |           | Other Siberian Basins              |                         | table 4  |           |            |           |           |
|------|-----------|------------------------------------|-------------------------|----------|-----------|------------|-----------|-----------|
| No.  | River     | Station                            | Area (km <sup>2</sup> ) | Latitude | Longitude | first rec. | last rec. | day/month |
| 25   | Yana      | Dzanghky                           | 216000                  | N 69.67  | E 135.33  | 1938       | 1984      | M         |
|      | Sugoy     | 3.2 km downstream of Omchikchan    | 5880                    | N 62.60  | E 156.00  | 1965       | 1984      | M         |
| 26   | Indigirka | Vorontsovo                         | 305000                  | N 69.58  | E 147.35  | 1937       | 1984      | M         |
| 27   | Kolyma    | Sredne-Kolymsk                     | 361000                  | N 67.37  | E 153.67  | 1927       | 1984      | M         |
| 28   | Nera      | Ala-Chubuk                         | 22300                   | N 64.68  | E 144.07  | 1965       | 1984      | M         |
|      | Amguema   | mouth of Shoumny Brook             | 26700                   |          |           | 1944       | 1984      | M         |
| 29   | Amga      | Buyaga                             | 23900                   | N 59.55  | E 126.95  | 1965       | 1984      | M         |
| 30   | Olenek    | 8 km upstream of mouth of River Pu | 181000                  | N 71.67  | E 123.98  | 1952       | 1963      | M         |
| 31   | Olenek    | 7.5 km downstream of River Pur     | 198000                  | N 72.12  | E 123.22  | 1965       | 1984      | M         |

# GLOBAL RUNOFF DATA CENTRE (GRDC) ACSYS - STATIONS

| MISSING VALUES FROM EUROPE |                                 |                             |              |                | Status: 31.05.1995 |
|----------------------------|---------------------------------|-----------------------------|--------------|----------------|--------------------|
| GRDC-No.                   | Rivername                       | Stationname                 | missing days | missing months |                    |
| 6401080                    | Hvita l Borgarfirdi             | Kjafoss                     | 180          | 6              |                    |
| 6401090                    | Oelfusa                         | Selfoss                     | 241          | 8              |                    |
| 6401110                    | Bruara                          | Efstadalsbru                | 241          | 8              |                    |
| 6401120                    | Thjorsa                         | Urdaefoss                   | 91           | 3              |                    |
| 6401130                    | Joekulsa l Fjotsdal             | Holl                        | 241          | 8              |                    |
| 6401200                    | Joekulsa Vestari                | Goddalabru                  | 151          | 5              |                    |
| 6401500                    | Djupa                           | Bru                         | 180          | 6              |                    |
| 6401600                    | Svarta                          | Ullarfoss                   | 241          | 8              |                    |
| 6401700                    | Joekulsa a Fjollum              | Detifoss                    | 241          | 8              |                    |
| 6401800                    | Lagarfjot                       | Lagarfoss                   | 327          | 55             |                    |
| 6730500                    | Tana                            | Polmak                      |              | 17             |                    |
| 6830100                    | Inarijoki                       | Karigasniemi                | 369          |                |                    |
| 6731150                    | Oselv                           | Roeykenes                   | 2120         |                |                    |
| 6731200                    | Vossa                           | Bulken                      | 2120         |                |                    |
| 6731250                    | Lygna                           | Tingvatn                    | 2120         |                |                    |
| 6731300                    | Dramsely                        | Etna                        | 2120         |                |                    |
| 6731350                    | Mosseelv                        | Hoegfoss                    | 2120         |                |                    |
| 6731400                    | Gloma                           | Langnes                     | 2120         | 8              |                    |
| 6731500                    | Gaula                           | Haga Bru                    | 2120         |                |                    |
| 6731550                    | Argardselv                      | Oeyungen                    | 2120         |                |                    |
| 6731900                    | Lakselv                         | Mevatn                      |              | 11             |                    |
| 6970200                    | Solza                           | Soukhie Porogui             | 330          |                |                    |
| 6970250                    | Northern Dvina(Severnaya Dvina) | Ust-Pinega                  |              | 5              |                    |
| 6971080                    | Ura                             | Ura-Guba                    | 30           |                |                    |
| 6971100                    | Kola                            | Oktiabrsky Railway, km 1429 | 30           |                |                    |

**GLOBAL RUNOFF DATA CENTRE (GRDC)  
ACSYS - STATIONS**

| <b>MISSING VALUES FROM CANADA</b> |                    |                      |                     | <b>Status: 31.05.1995</b> |    |
|-----------------------------------|--------------------|----------------------|---------------------|---------------------------|----|
| <b>GRDC-No.</b>                   | <b>Rivername</b>   | <b>Stationname</b>   | <b>missing days</b> | <b>missing months</b>     |    |
| 4209010                           | Firth River        | near The mouth       | 264                 |                           |    |
| 4209100                           | Trail Valley Creek | near Inuvik          | 779                 |                           |    |
| 4209100                           | Trail Valley Creek | near Inuvik          | 779                 |                           |    |
| 4209400                           | Coppermine River   | Point Lake Outlet    | 240                 |                           |    |
| 4209450                           | Big River          | above Egg River      | 741                 |                           |    |
| 4209500                           | Tree River         | near The mouth       | 250                 |                           |    |
| 4209550                           | Burnside River     | near The mouth       | 230                 |                           |    |
| 4209580                           | Gordon River       | near The mouth       | 754                 |                           |    |
| 4209650                           | Freshwater Creek   | near Cambridge Bay   | 1663                |                           |    |
| 4209800                           | Back               | below Deep Rose Lake |                     |                           | 29 |

**GLOBAL RUNOFF DATA CENTRE (GRDC)  
ACSYS - STATIONS**

| MISSING VALUES FROM MACKENZIE REGION |                     |                                    |              |                | Status: 31.05.1995 |
|--------------------------------------|---------------------|------------------------------------|--------------|----------------|--------------------|
| GRDC-No.                             | Rivername           | Stationname                        | missing days | missing months |                    |
| 4208020                              | Mackenzie River     | Inuvik (East Channel)              | 82           |                |                    |
| 4208025                              | Mackenzie River     | Arctic Red River                   | 14           |                |                    |
| 4208030                              | Rengleng River      | below Highway No. 8                | 328          |                |                    |
| 4208050                              | Snake River         | near The mouth                     | 650          |                |                    |
| 4208110                              | Carcajou River      | below Imperial River               | 227          |                |                    |
| 4208150                              | Mackenzie River     | Norman Wells                       | 5986         |                | 22                 |
| 4208190                              | Hyland River        | km 108.5 Nahanni Range Road        | 379          |                |                    |
| 4208200                              | Root River          | near The mouth                     | 13           |                |                    |
| 4208210                              | Indin River         | above Chalco Lake                  | 26           |                |                    |
| 4208220                              | South Nahanni River | above Clausen Creek                | 721          |                | 28                 |
| 4208230                              | Birch River         | Highway No. 7                      | 15           |                |                    |
| 4208240                              | Hyland River        | near Lower Post                    | 361          |                |                    |
| 4208255                              | Kechika             | mouth                              |              |                | 16                 |
| 4208270                              | Liard River         | Lower Crossing                     | 1572         |                | 6                  |
| 4208280                              | Liard River         | Fort Liard                         | 4626         |                | 9                  |
| 4208300                              | Mackenzie River     | near Fort Providence               | 2655         |                | 19                 |
| 4208320                              | Snowdrift River     | Outlet of Siltaza Lake             | 144          |                |                    |
| 4208340                              | Marten River        | above Thoa River                   | 199          |                |                    |
| 4208360                              | Muskwa              | near Fort Nelson                   |              |                | 71                 |
| 4208365                              | Fort Nelson         | above Muskwa River                 |              |                | 9                  |
| 4208400                              | Slave River         | Fitzgerald                         | 11959        |                | 404                |
| 4208450                              | Peace River         | Peace Point                        | 129          |                |                    |
| 4208550                              | Peace River         | Hudson Hope                        |              |                | 25                 |
| 4208560                              | Halfway             | near Farrell Creek (Lower Station) |              |                | 12                 |
| 4208570                              | Pine                | East Pine                          |              |                | 17                 |
| 4208610                              | Whitemud River      | near Dixonville                    | 359          |                |                    |
| 4208630                              | Peace River         | Peace River                        | 9457         |                | 317                |
| 4208640                              | Smoky River         | Watino                             | 12044        |                |                    |
| 4208650                              | Heart River         | near Nampa                         | 827          |                |                    |
| 4208710                              | Hartley Creek       | near Fort Mackay                   | 363          |                |                    |
| 4208720                              | Steepbank River     | near Fort McMurray                 | 634          |                |                    |
| 4208730                              | Athabasca River     | below McMurray                     | 177          |                | 3                  |
| 4208740                              | Hangingsstone River | Fort McMurray                      | 1099         |                |                    |
| 4208780                              | West Prairie River  | near High Prairie                  | 12992        |                |                    |
| 4208810                              | Waskahigan River    | near The mouth                     | 264          |                |                    |
| 4208870                              | Athabasca River     | Athabasca                          | 5021         |                |                    |
| 4208910                              | Snake Indian River  | near The mouth                     | 3537         |                |                    |
| 4208920                              | Athabasca River     | near Jasper                        | 14379        |                |                    |
| 4208955                              | Lobstick River      | near Styal                         | 83           |                |                    |
| 4208960                              | Pembina River       | near Entwistle                     | 11558        |                |                    |

**GLOBAL RUNOFF DATA CENTRE (GRDC)  
ACSYS - STATIONS**

| MISSING VALUES FROM ASIA |                     |                                    |              |                | Status: 31.05.1995 |  |
|--------------------------|---------------------|------------------------------------|--------------|----------------|--------------------|--|
| GRDC-No.                 | Rivername           | Stationname                        | missing days | missing months |                    |  |
| 2903150                  | Anabar              | Saskylakh                          |              | 22             |                    |  |
| 2903200                  | Kempendai           | Kempendai                          | 361          |                |                    |  |
| 2903450                  | Ebitiem             | Ebetem                             | 24           |                |                    |  |
| 2903500                  | Kenkeme             | Vtoroy Stanok                      | 52           |                |                    |  |
| 2903700                  | Tuba                | Bugurtak                           |              | 6              |                    |  |
| 2903920                  | Radio-Uruyete       | near The mouth                     | 1            |                |                    |  |
| 2903930                  | Podgornyi           | near The mouth                     | 461          |                |                    |  |
| 2903950                  | Malaya Cherepanikha | Tiube                              | 2            |                |                    |  |
| 2903960                  | Shestakovka         | Kamyrdagystakh                     | 2            |                |                    |  |
| 2707050                  | Ider                | Tosontsengel                       | 549          |                |                    |  |
| 2707200                  | Khoit Tamir         | Ikht Tamir                         | 31           |                |                    |  |
| 2707900                  | Terelj              | Terelj                             | 194          |                |                    |  |
| 2907500                  | Pur                 | Samburg                            |              | 41             |                    |  |
| 2908400                  | Khilok              | Maleta                             | 1            |                |                    |  |
| 2909100                  | Graviyka            | Igarka                             | 295          |                |                    |  |
| 2909280                  | Markha              | Malykai                            |              | 9              |                    |  |
| 2910480                  | Akkem               | Akkem                              | 2401         |                |                    |  |
| 2911200                  | Ishim               | Petropavlovsk                      |              | 17             |                    |  |
| 2911300                  | Ishim               | Tselinograd                        | 255          |                |                    |  |
| 2911940                  | Aremzyanka          | Chukmanka                          | 41           |                |                    |  |
| 2912200                  | Uy                  | Stepnoe                            | 361          |                |                    |  |
| 2912550                  | Northern Sosva      | Sosva                              |              | 12             |                    |  |
| 2998100                  | Yana                | Dzanghky                           |              | 10             |                    |  |
| 2998400                  | Indigirka           | Vorontsovo                         |              | 4              |                    |  |
| 2998500                  | Kolyma              | Sredne-Kolymsk                     |              | 96             |                    |  |
| 2998600                  | Nera                | Ala-Chubuk                         |              | 21             |                    |  |
| 2998900                  | Amguema             | mouth of Shoumny Brook             |              | 126            |                    |  |
| 2999900                  | Olenek              | 8km Upstream of mouth Of Pur River |              | 4              |                    |  |

## Reference of GRDC-Reports

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- Report No. 1**      Second Workshop on the Global Runoff Data Centre, Koblenz, Germany, 15 - 17 June 1992; May 1993
- Report No. 2**      Dokumentation bestehender Algorithmen zur Übertragung von Abflußwerten auf Gitternetze. (Incl. abstract in English by GRDC: Documentation of existing algorithms for transformation of runoff data to grid cells). G. C. Wollenweber, May 1993
- Report No. 3**      GRDC - Status Report 1992, June 1993
- Report No. 4**      GRDC - Status Report 1993, June 1994
- Report No. 5**      Hydrological Regimes of the Largest Rivers of the World - A Compilation of the GRDC Database, November 1994
- Report No. 6**      Report of the first meeting of the GRDC Steering Committee, Koblenz, Germany, 20 - 21 June 1994
- Report No. 7**      GRDC - Status Report 1994, June 1995
- Report No. 8**      First Interim Report on the Arctic River Database for the Arctic Climate System Study (ACSYS), July 1995