The FCC Integrated Surface Hourly Database, A New Resource for Global Climate Data

Why Bother ??

- Multiple data sources difficult to use
- -- Differing formats
- -- Differing time conventions (LST, GMT)
- -- Differing station numbering systems
- Need to make servicing more efficient
- Need for additional quality control

Project Phases

- Proposal and funding
- Research and preparatory
- Programming
- Data processing
- Quality control phases 1, 2, and 3
- Cdrom product
- Online implementation

Proposal and Funding

- ESDIM and OGP
- Federal Climate Complex datasets
- -- NCDC US surface hourly
- -- USAF global surface hourly & synoptic
- -- NCDC US hourly precipitation
- Full period of digital record
- "Merge" into one global database

Research and Preparatory

- Detailed project plan
- LST $\rightarrow$ GMT research
- Metadata prep
- FCC coordination

Programming

- Time conversions (ISH in GMT time)
- Format conversions
- Station history preparation
- Data merging
- Inventories

Data Processing

- Time and format conversions
- Merging where applicable
- Produce full period of record archive
- Inventories and inventory comparison

Integrated Surface Hourly Dataset
Initial Population Process Flow
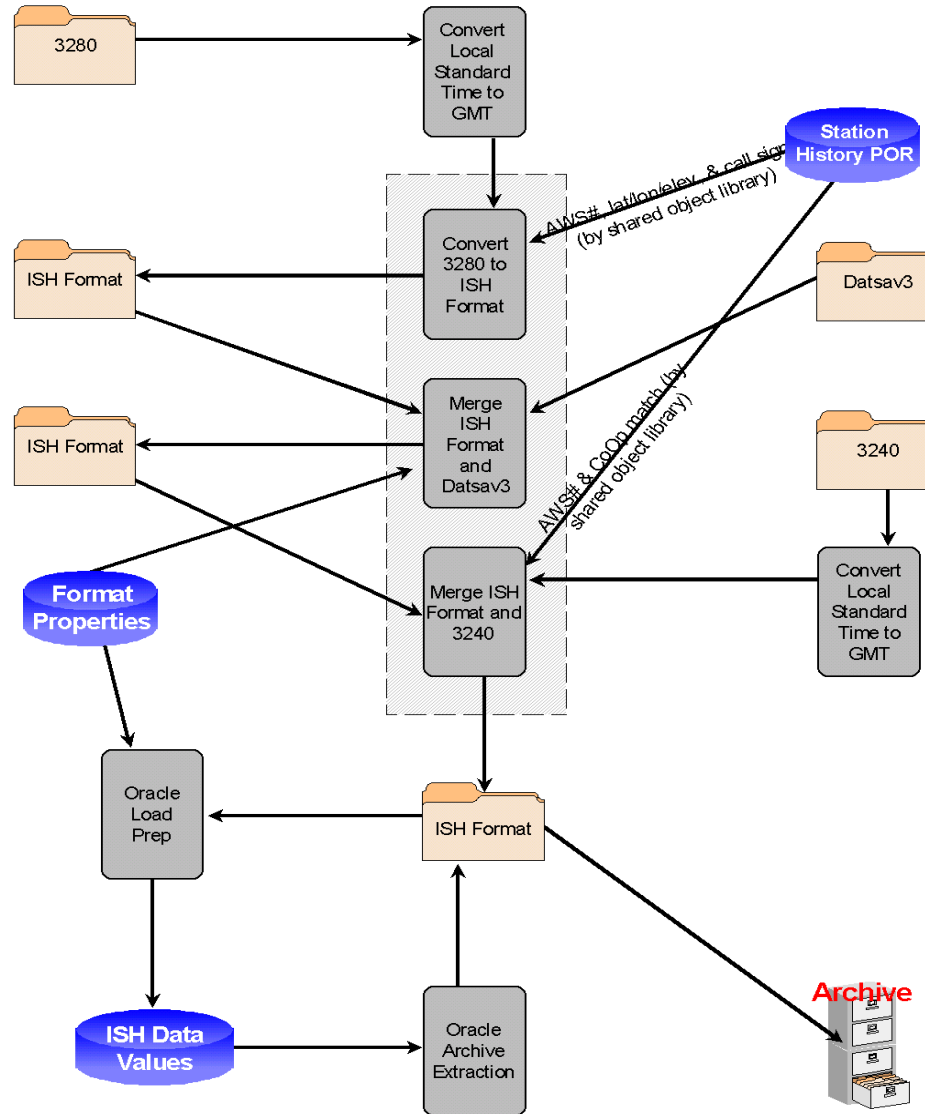
Quality Control

- Phase 1 – selected reprocessing
- Phase 2 – program and process QC algorithms to correct random and systematic errors in the data
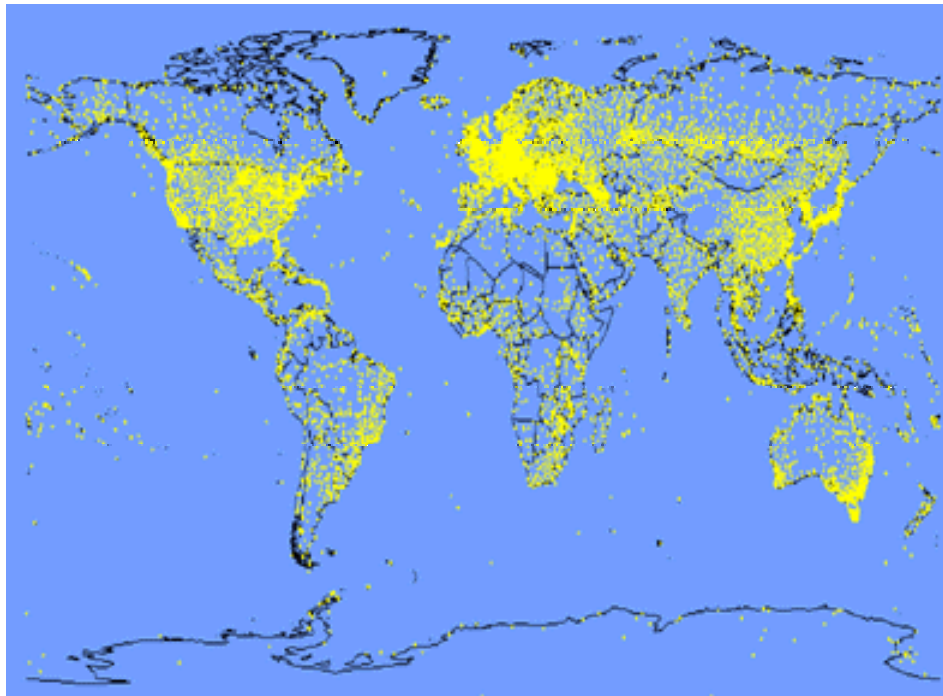- Phase 3 – additional QC – homogeneity checks, spatial checks, etc -- unfunded

The Results….
~ 20,000 stations historically
As early as 1900 to present
Version 1 completed late 2000
Version 2 completed early 2002

CDROM Product

- ISH data for 1995-2000 period
- Data selection via map interface
- Approximately 10,000 stations

Online Implementation

- Data modeling for relational database
- Integrate data into NNDC CDO system
- Programming to select data temporally and spatially (by region, country, state, etc)
- Implement initially for most recent data
- Implement later for full period of record
- Additional hardware requirements

Future Plans

- Additional datasets merged into ISH
- Additional quality control
- Additional metadata/station histories
- Additional scientific studies and use of the data

NNDC CLIMATE DATA ONLINE

**Accessing data selection screen for
Surface Data, Hourly Global**

Simplified: this system allows for very easy selection of data for a station or multiple stations, for user-selected time period. The elements provided include precipitation, temperature, dewpoint, winds, visibility, cloud cover, pressure, and present weather (as available for each station) on an easy-to-read, printable form.

Continue With SIMPLIFIED Options

Advanced: this system allows for selection of data for a station or multiple stations, for user-selected time period. In contrast to the simplified system, the user selects the elements of interest (eg, snow depth) and the output format--such as an ASCII text file for later use in a spreadsheet, or a printable form -- user choice of one or the other.

Continue With ADVANCED Options

File   Edit   View   Go   Communicator   Help

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Bookmarks   Location: http://cdo.ncdc.noaa.gov/plclimdev/plsql/cdomain.abbrev2id   What's Related

NNDC CLIMATE DATA ONLINE

Surface Data, Hourly Global (TD3505)

Retrieve data for:

- ◉ **Worldwide**
- ○ **Geographic Region** [None Selected ▾]
- ○ **Country** [None Selected ▾]
- ○ **Station Range** (AWS or WBAN IDs): [_____] to [_____]

[Continue]   [Clear Selections]   [Previous Page]   [New Search]

Data Documentation

📋	**Data format documentation**
📋	**ASCII Text Sample**
📋	**Webform Sample**
📋	**Station list** (may take several minutes to load)

Data and pricing details at the CDO Help Page

Document: Done

Start | Surface Data, Hourly ... | Inbox - Netscape Folder | Microsoft PowerPoint - [Pre... | 1:43 PM
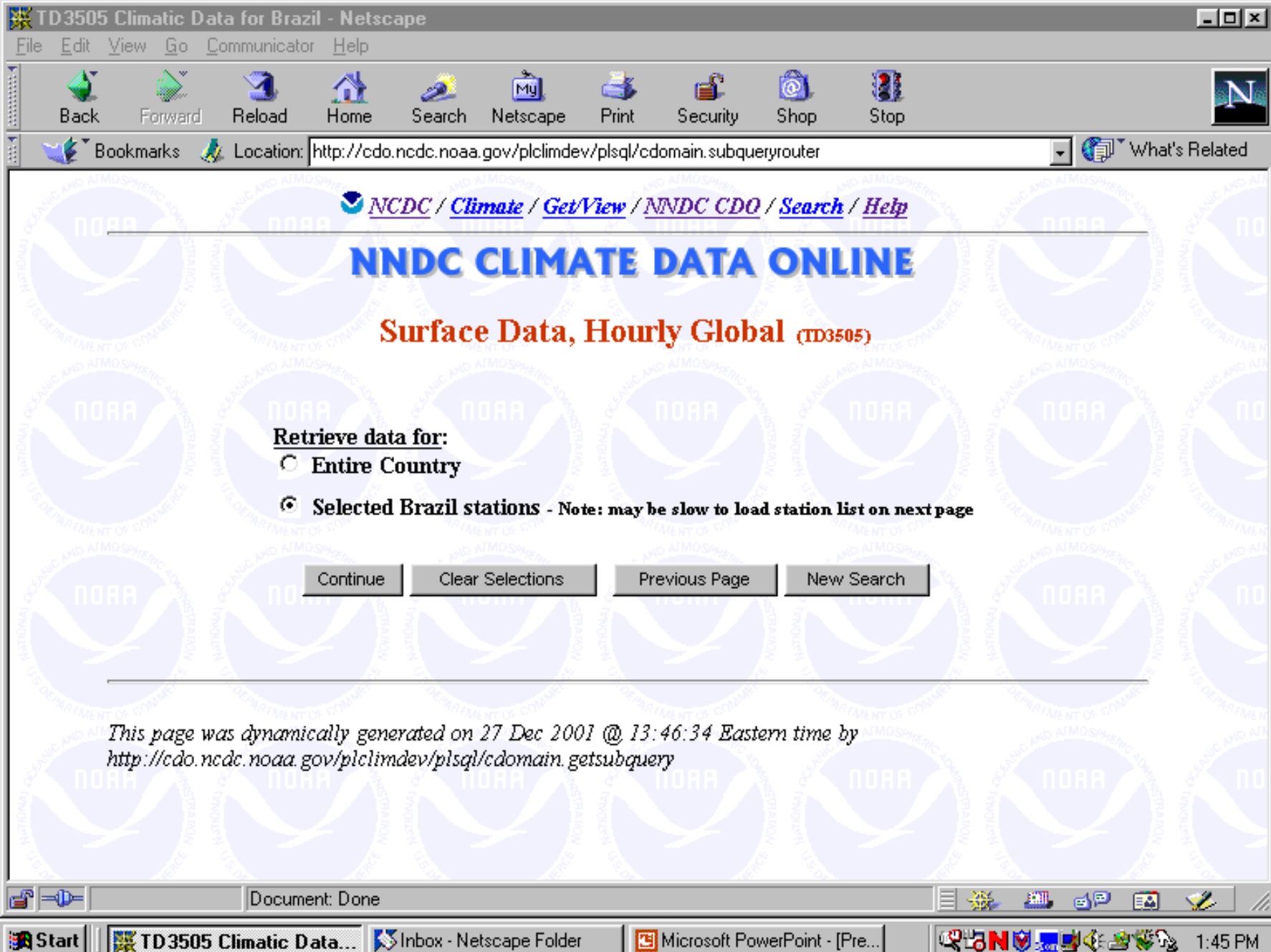
NCDC / *Climate* / *Get/View* / *NNDC CDO* / *Search* / *Help*

NNDC CLIMATE DATA ONLINE

Surface Data, Hourly Global (TD3505)

Retrieve data for:

○ **Entire Country**

◉ **Selected Brazil stations** - Note: may be slow to load station list on next page

| Continue | Clear Selections | Previous Page | New Search |

This page was dynamically generated on 27 Dec 2001 @ 13:46:34 Eastern time by
http://cdo.ncdc.noaa.gov/plclimdev/plsql/cdomain.getsubquery

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Bookmarks   Location: http://cdo.ncdc.noaa.gov/plclimdev/plsql/cdomain.subqueryRouter   What's Related

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NNDC CLIMATE DATA ONLINE

Surface Data, Hourly Global (TD3505)

Select Brazil stations (maximum of 100)

Station Name	AWS	WBAN ID	Period of Record
Abrolhos Island................834990	99999	01/1995 to 09/1997
Afonsos Arpt (Mil)............837480	99999	01/1995 to 12/1999
Agua Branca..................829890	99999	04/1995 to 01/1999
Agua Clara....................836150	99999	01/1995 to 11/1998
Aimores.......................835950	99999	01/1995 to 12/1999
Alagoinha....................832490	99999	01/1995 to 12/1999
Alcomat.......................833020	99999	01/1995 to 12/1999
Alta Floresta................829650	99999	01/1995 to 12/1999
Altamira......................823530	99999	01/1995 to 12/1999
Anapolis (Braz-Afb)..........834190	99999	01/1995 to 12/1999
Angra Dos Reis..............837880	99999	01/1995 to 10/1995

Sort by Station ID

Continue   Clear Selections   Previous Page   New Search

Document: Done

Start   TD3505 Climatic Data...   Inbox - Netscape Folder   Microsoft PowerPoint - [Pre...   1:46 PM

File   Edit   View   Go   Communicator   Help

Back   Forward   Reload   Home   Search   Netscape   Print   Security   Shop   Stop

Bookmarks   Location: http://cdo.ncdc.noaa.gov/plclimdev/plsql/cdomain.dateoutmode

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NNDC CLIMATE DATA ONLINE

Surface Data, Hourly Global (TD3505)
for Brazil - 1 stations.

Select Date Restrictions:
⊙ **Use Date Range**

	Year	**Month**	**Day**	**Hour**
From	1999	01	01	00
To	1999	01	31	23

○ **Select Only Obs. on the Hour**

Output Formats:	**Output via:** FTP
Space Delimited Text File	
Webform HTML File	

Continue   Clear Selections   Previous Page   New Search

Document: Done

Start   TD3505 Climatic Data...   Inbox - Netscape Folder   Microsoft PowerPoint - [Pre...   1:47 PM

File   Edit   View   Go   Communicator   Help

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Bookmarks   Location: http://cdo.ncdc.noaa.gov/cgi-bin/cdo/cdodev.pl   What's Related

NNDC CLIMATE DATA ONLINE

TD3505 - Surface Data, Hourly Global, Request Summary

Brazil / Selected Stations - includes 1 stations *(See selected stations below)*

Date Range (Year / Month / Day / Hour):
1999/01/01/00 to 1999/01/31/23

Selected Output Format:

Selected Output Media:
FTP

Hourly Obs Available:
See Inventory File - **Note!** Inventory may not be available for several minutes

Output File Size (bytes):
Not Available

Please check the Inventory File to see if the requested period of record is available before ordering.

IMPORTANT! Please enter a valid email address below so we can notify you when your request has finished processing.

E-mail Address: Neal.Lott@noaa.gov

Submit Request

Document: Done

Start   TD3505 - Surface Dat...   Inbox - Netscape Folder   Microsoft PowerPoint - [Pre...   1:48 PM

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Bookmarks   Location: http://cdo.ncdc.noaa.gov/cgi-bin/cdo/cdodev.pl   What's Related

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NNDC CLIMATE DATA ONLINE

TD3505 - Surface Data, Hourly Global, Request Verification

Your TD3505 - Surface Data, Hourly Global request - **CDD00000382** has been submitted for processing.

You will be notified by email at **Neal.Lott@noaa.gov** when processing has completed for your request.

NOTICE! **Click on the following URL to access your files:**
http://cdo.ncdc.noaa.gov/prod/cdohtml/CDD590515234490.html

This page was dynamically generated on Thu Dec 27 13:49:48 EST 2001 by
http://cdo.ncdc.noaa.gov/cgi-bin/cdo/cdodev.pl

Document: Done

Start   TD3505 - Surface Dat...   Inbox - Netscape Folder   Microsoft PowerPoint - [Pre...   1:49 PM

File   Edit   View   Go   Communicator   Help

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Bookmarks   Location: http://cdo.ncdc.noaa.gov/prod/cdohtml/CDD590515234490.html   What's Related

This web page and the data files / web forms listed below will be available for **7 days**, after which they will be deleted from NCDC's web server.

File Contents	Access URL	File Size Estimate (bytes)
TD3505 - Surface Data, Hourly Global - Web Form	http://ftp.ncdc.noaa.gov/pub/upload/590515234490dat.html	Not available - see email message
TD3505 - Surface Data, Hourly Global - Data File	**Note!** Name and URL of data file will be determined by final output file size. Only one of the links below will point to your data file. Final email message will also provide the exact link to your data file. http://ftp.ncdc.noaa.gov/pub/upload/590515234490dat.txt ftp://ftp.ncdc.noaa.gov/pub/upload/590515234490dat.txt.Z	Not available - see email message
TD3505 - Surface Data, Hourly Global - Inventory	http://ftp.ncdc.noaa.gov/pub/upload/590515234490inv.txt	Not available - see email message
Station List	http://ftp.ncdc.noaa.gov/pub/upload/590515234490stn.txt	545
TD3505 - Surface Data, Hourly Global format documentation	http://ftp.ncdc.noaa.gov/pub/upload/590515234490doc.txt	Not available - see email message

Notes:

*File sizes shown are calculated estimates, and in certain cases may differ significantly from actual file sizes.

Document: Done

Start | TD3505 - Surface Dat... | Inbox - Netscape Folder | Microsoft PowerPoint - [Pre...   1:50 PM

```
   AWS   WBAN YR--MODAHRMN DIR SPD GUS CLG SKC L M H  VSB WW WW WW W TEMP DEWP    SLP    ALT    STP
837430 99999 199901011800 170   5 *** 118 BKN 1 3 1 12.5 ** ** ** *  83   74 1007.7 ***** ******
837430 99999 199901021200 130   3 *** 118 OVC 5 3 7  5.6 10 ** ** 2  80   78 1007.7 ***** ******
837430 99999 199901031200 020   2 *** 722 SCT 5 0 1  2.5 05 ** ** 1  81   74 1008.8 ***** ******
837430 99999 199901031800 160  17 *** 722 SCT 1 0 0 12.5 ** ** ** *  84   73 1007.7 ***** ******
837430 99999 199901041200 010   3 *** 722 BKN 5 0 1 12.5 ** ** ** *  82   73 1010.1 ***** ******
837430 99999 199901041800 170  14 *** 722 BKN 1 0 1 12.5 ** ** ** *  82   72 1007.5 ***** ******
837430 99999 199901051200 330   7 *** 722 BKN 5 0 1 12.5 ** ** ** *  82   74 1006.2 ***** ******
837430 99999 199901051800 170  11 *** 722 BKN 2 0 1 12.5 ** ** ** *  86   75 1004.1 ***** ******
837430 99999 199901061200 ***   0 *** 118 BKN 5 3 1  7.5 05 ** ** 2  83   75 1007.7 ***** ******
837430 99999 199901061800 290  10 *** 118 OVC 9 6 3  6.2 95 ** ** 9  79   76 1007.8 ***** ******
837430 99999 199901071200 040   5 *** 118 BKN 5 3 0  3.8 10 ** ** 5  80   74 1011.8 ***** ******
837430 99999 199901071800 ***   0 *** 118 BKN 5 3 1  2.5 60 ** ** 2  84   76 1010.8 ***** ******
837430 99999 199901081200 180   5 *** 722 SCT 5 0 1  7.5 05 ** ** 2  82   74 1011.9 ***** ******
837430 99999 199901081800 170  15 *** 722 BKN 1 0 1 12.5 ** ** ** *  83   74 1009.2 ***** ******
837430 99999 199901091200 ***   0 *** 722 SCT 1 0 0 12.5 ** ** ** *  82   74 1012.9 ***** ******
837430 99999 199901091800 190  13 *** 722 SCT 5 0 0 12.5 ** ** ** *  84   74 1011.8 ***** ******
837430 99999 199901111200 030   3 *** 722 SCT 1 0 0  9.4 05 ** ** 0  82   73 1015.0 ***** ******
837430 99999 199901111800 160  14 *** 722 SCT 1 0 0 12.5 ** ** ** *  82   73 1012.8 ***** ******
837430 99999 199901121200 010   5 *** 722 SCT 1 0 0 12.5 ** ** ** *  82   69 1014.6 ***** ******
837430 99999 199901121800 160  14 *** 722 SCT 1 0 0 12.5 ** ** ** *  84   70 1013.0 ***** ******
837430 99999 199901131200 040   5 *** 722 BKN 5 0 1  6.2 05 ** ** 1  82   72 1014.5 ***** ******
837430 99999 199901131800 150  13 *** 118 BKN 1 6 0 12.5 ** ** ** *  84   71 1014.4 ***** ******
837430 99999 199901141200 130   8 *** 118 BKN 5 3 0  7.5 05 ** ** 2  81   72 1012.8 ***** ******
837430 99999 199901141800 180  16 *** 722 SCT 1 0 0 12.5 ** ** ** *  85   74 1008.9 ***** ******
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837430 99999 199901151800 ***   3 *** 118 BKN 5 3 0 12.5 ** ** ** *  87   72 1007.4 ***** ******
837430 99999 199901161200 030   2 *** 722 SCT 5 3 0 12.5 ** ** ** *  83   71 1012.2 ***** ******
837430 99999 199901161800 200  14 *** 118 OVC 3 4 4  9.4 95 ** ** 2  82   74 1011.8 ***** ******
837430 99999 199901171200 140   6 *** 722 SCT 5 0 1  9.4 ** ** ** *  83   73 1015.6 ***** ******
```

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NNDC CLIMATE DATA ONLINE

Surface Data, Hourly Global (TD3505)

for Brazil - 1 stations.

```
All Data Elements
Cloud Ceiling
Cloud Data, General
Clouds Below Station
Clouds, Layer Data (Metar)
Clouds, Layer Data (Synoptic)
Dew Point
Ground Surface Condition and Temperature
Hail Data
Ice Accretion, Platform
```

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http://cdo.ncdc.noaa.gov/plclimdev/plsql/cdomain.selectdateelem

```
                                                            VISIBILITY   TEMP      DEWPT
IDENTIFICATION
Name                    USAF   NCDC   Date      HrMn I Type  Visby  Q I Q Temp  Q Dewpt  Q
RIO DE JANEIRO          837430 99999 19990101 1800 4 FM-12 020000 1 N 1  28.2 1   23.3 1
RIO DE JANEIRO          837430 99999 19990102 1200 4 FM-12 009000 1 N 1  26.4 1   25.6 1
RIO DE JANEIRO          837430 99999 19990103 1200 4 FM-12 004000 1 N 1  27.4 1   23.2 1
RIO DE JANEIRO          837430 99999 19990103 1800 4 FM-12 020000 1 N 1  29.0 1   22.9 1
RIO DE JANEIRO          837430 99999 19990104 1200 4 FM-12 020000 1 N 1  27.6 1   22.9 1
RIO DE JANEIRO          837430 99999 19990104 1800 4 FM-12 020000 1 N 1  27.6 1   22.3 1
RIO DE JANEIRO          837430 99999 19990105 1200 4 FM-12 020000 1 N 1  27.6 1   23.5 1
RIO DE JANEIRO          837430 99999 19990105 1800 4 FM-12 020000 1 N 1  30.2 1   23.9 1
RIO DE JANEIRO          837430 99999 19990106 1200 4 FM-12 012000 1 N 1  28.2 1   24.1 1
RIO DE JANEIRO          837430 99999 19990106 1800 4 FM-12 010000 1 N 1  26.3 1   24.2 1
RIO DE JANEIRO          837430 99999 19990107 1200 4 FM-12 006000 1 N 1  26.6 1   23.3 1
RIO DE JANEIRO          837430 99999 19990107 1800 4 FM-12 004000 1 N 1  29.0 1   24.7 1
RIO DE JANEIRO          837430 99999 19990108 1200 4 FM-12 012000 1 N 1  27.6 1   23.5 1
RIO DE JANEIRO          837430 99999 19990108 1800 4 FM-12 020000 1 N 1  28.2 1   23.5 1
RIO DE JANEIRO          837430 99999 19990109 1200 4 FM-12 020000 1 N 1  28.0 1   23.3 1
RIO DE JANEIRO          837430 99999 19990109 1800 4 FM-12 020000 1 N 1  29.0 1   23.5 1
RIO DE JANEIRO          837430 99999 19990111 1200 4 FM-12 015000 1 N 1  27.8 1   22.8 1
RIO DE JANEIRO          837430 99999 19990111 1800 4 FM-12 020000 1 N 1  28.0 1   22.9 1
RIO DE JANEIRO          837430 99999 19990112 1200 4 FM-12 020000 1 N 1  27.7 1   20.7 1
RIO DE JANEIRO          837430 99999 19990112 1800 4 FM-12 020000 1 N 1  29.0 1   21.0 1
RIO DE JANEIRO          837430 99999 19990113 1200 4 FM-12 010000 1 N 1  27.8 1   22.2 1
RIO DE JANEIRO          837430 99999 19990113 1800 4 FM-12 020000 1 N 1  28.8 1   21.6 1
RIO DE JANEIRO          837430 99999 19990114 1200 4 FM-12 012000 1 N 1  27.2 1   22.1 1
RIO DE JANEIRO          837430 99999 19990114 1800 4 FM-12 020000 1 N 1  29.2 1   23.2 1
RIO DE JANEIRO          837430 99999 19990115 1200 4 FM-12 010000 1 N 1  25.4 1   23.7 1
RIO DE JANEIRO          837430 99999 19990115 1800 4 FM-12 020000 1 N 1  30.4 1   22.0 1
RIO DE JANEIRO          837430 99999 19990116 1200 4 FM-12 020000 1 N 1  28.4 1   21.9 1
RIO DE JANEIRO          837430 99999 19990116 1800 4 FM-12 015000 1 N 1  27.6 1   23.2 1
RIO DE JANEIRO          837430 99999 19990117 1200 4 FM-12 015000 1 N 1  28.6 1   22.8 1
```