LTER Coordinating Committee Meeting Presentation: *Climate Database (ClimDB)*

Karen Baker (PAL) Oct97

Introduction

Network Information System Strategic Vision

- Our goal is to promote ecological science by fostering the synergy of information systems and scientific research.

CLIMDB: Statement of Problem

- Standardize meteorological measurements
- to provide a basis for coordinating at two or more sites
- to facilitate intersite studies
- using an extensible model.

The Process

- Need: access to data sets Note: World-Wide Web developments
- Need: aggregates of climate data Note: datasets from multiple sites not comparable
- Need: user groups: CLIMDES and Xroots Note: user needs defined
- Need: CLIMDB Prototype Note: prototype to update dynamically Note: datasets remain locally stored
- Need: Further Prototype development Note: Include data managers, scientist and end users

Timeline

Network Info System Model

Climate Prototype

Prototype Description

- **aggregates and presents daily climate data from sites**
- **module of Network Information System**
- **site data filtered to exchange format**
- **site data harvested into centralized relational database**
- **distribution formats from webpage access**
- **web query by site, weather station, date**
- **graphical presentation**

ClimDB View: Web Page

- **(WARNING: Test data are not necessarily valid)**
- **ClimDB Project Description**
  ClimDB climate test data participating sites
- **Query daily TEST climate data**
- **Query monthly one-parameter-across TEST climate data (V-One)**
- **Query monthly multiple-parameters-across TEST climate data (V-Many)**
- **Graph daily data**
- **Comments or questions about this page**

ClimDB View: Participating Sites

AND	H.J. ANDREWS EXPERIMENTAL FOREST	BLUE RIVER OREGON
ARC	ARCTIC TUNDRA	TOOLIK LAKE BROOKS RANGE
BNZ	BONANZA CREEK EXPERIMENTAL FOREST	FAIRBANKS ALASKA
CWT	COWEETA HYDROLOGIC LABORATORY	OTTO NORTH CAROLINA
JRN	JORNADA BASIN	LAS CRUCES NEW MEXICO
KNZ	KONZA PRAIRIE RESEARCH NATURAL AREA	MANHATTAN KANSAS
MCM	MCMURDO DRY VALLEYS	MCMURDO STATION ANTARCTICA
NTL	NORTH TEMPERATE LAKES	NEAR BOULDER JUNCTION WISCONSIN
NWT	NIWOT RIDGE/GREEN LAKES VALLEY	NEAR BOULDER COLORADO
PAL	PALMER STATION	ANTARCTICA
SEV	SEVILLETA NATIONAL WILDLIFE REFUGE	NEAR ALBUQUERQUE NEW MEXICO
SGS	SHORTGRASS STEPPE	NUNN COLORADO
VCR	VIRGINIA COAST RESERVE	NEAR OYSTER VIRGINIA

ClimDB View: Data Request

NB: If you leave a query output window open, results of subsequent queries may go "underneath" this window instead of "on top" of this window. Thus if you seem to get no output after submitting your query please check any other browser windows that are open.

site station date range

AND__PRIMET, _____01/01/1991 - 12/31/1995
ARC__TLKMAIN, _____04/19/1991 - 12/31/1995
BNZ__LTER1, _____01/01/1991 - 12/31/1995
CWT__CS01, _____01/01/1991 - 12/31/1995
JRN__LTERWS, _____01/01/1991 - 12/31/1995
KNZ__HQ1, _____01/01/1991 - 12/31/1995
MCM__BONNEY, _____11/25/1993 - 01/26/1997
NTL__AIRPORTWOO, ___01/01/1991 - 12/31/1995
NWT__SADDLE, _____01/01/1991 - 12/31/1995
PAL__PALOBS, _____01/01/1991 - 12/31/1995
SEV__DEEPWELL, ____01/02/1991 - 12/31/1995
SGS__MET1, _____01/01/1991 - 12/31/1995
VCR__HOGI, _____01/01/1991 - 05/29/1997

☑ all stations

Starting Year?

◉ 1991 ○ 1992 ○ 1993 ○ 1994 ○ 1995 ○ 1996 ○ 1997

Ending Year?

○ 1991 ○ 1992 ○ 1993 ○ 1994 ○ 1995 ○ 1996 ◉ 1997

Avg_mean_air_temp_c
Avg_max_air_temp_c
Avg_min_air_temp_c
Totl_precip_mm

☑ all variables

○ screen (max 500 records) ◉ comma delimited download ○ tab delimited download

Reset Submit

ClimDB View: Report: Vone

is number of good values (including estimated values) that went into that summary value.

AND PRIMET Avg_mean_air_temp_c

Year	Jan	#	Feb	#	Mar	#	Apr	#	May	#	Jun	#	Jul	#	Aug	#	Sep	#	Oct	#	Nov	#	Dec	#
1992	3.31	29	5.78	29	8.11	30	9.96	30	14.96	31	16.65	30	18.15	31	18.61	31	14.11	30	9.77	31	4.95	30	.99	31
1993	-.58	31	.63	28	6.03	31	7.73	30	13.19	31	12.79	28	12.81	31	14.53	31	12.52	30	8.55	31	-.79	30	-.23	30
1994	1.49	31	.39	28	3.94	31	7.26	30	12.17	31	12.99	30	18.03	31	16.66	31	15.1	29	8.47	31	1.02	30	.01	20
1995	2.96	31	5.77	26	5.04	31	7.12	30	12.36	31	14.3	30	17.96	30	15.45	31	15.54	28	8.44	31	7.37	30	3.59	31

ARC TLKMAIN Avg_mean_air_temp_c

Year	Jan	#	Feb	#	Mar	#	Apr	#	May	#	Jun	#	Jul	#	Aug	#	Sep	#	Oct	#	Nov	#	Dec	#
1992	-25.65	31	-28.57	29	-16	31	-14.86	30	-6.79	31	7.44	16	13.67	7		0	-9.26	27	-13.56	31	-17.63	30	-23.86	31
1993	-8.63	13		0		0		0		0	8.67	15	13.85	31	5.97	31	-.89	30	-6.5	31	-15.75	30	-21.11	31
1994	-21.63	31	-21.63	28	-23.89	31	-16	30	-.5	31	6.25	30	13.35	31	9.01	31	-3.19	30	-15.07	31	-22	30	-23.31	31
1995	-20.26	31	-19.72	28	-22.25	31	-8.14	30	1.78	31	7.29	30	10.87	31	6.13	31	3.32	30	-11.74	31	-18.73	30	-23.31	31

PROTOTYPE TEST LTER Climate Data

WARNING data for interface testing purposes and not necessarily valid.

is number of good values (including estimated values) that went into that summary value.

AND PRIMET Totl_precip_mm

Year	Jan	#	Feb	#	Mar	#	Apr	#	May	#	Jun	#	Jul	#	Aug	#	Sep	#	Oct	#	Nov	#	Dec	#
1992	160.5	31	200.9	29	40	31	289.5	30	20.1	31	53.1	30	23.8	31	1.1	31	79.1	30	176.2	31	377.4	30	419.1	31
1993	242.5	31	94.7	28	354.5	31	393.5	30	236.7	31	87	30	51.9	31	4.7	31	0	30	42.4	31	103.3	30	277.5	31
1994	287.4	31	284.9	28	156.3	31	134.6	30	91.7	31	96.2	30	2.4	31	1.8	31	45.3	30	226	31	435.9	30	242.3	31
1995	431.1	31	200.1	28	178.2	31	237.2	30	115.5	31	120.8	30	38.7	31	56.3	31	101.6	30	158.2	31	553	30	433.6	31

ARC TLKMAIN Totl_precip_mm

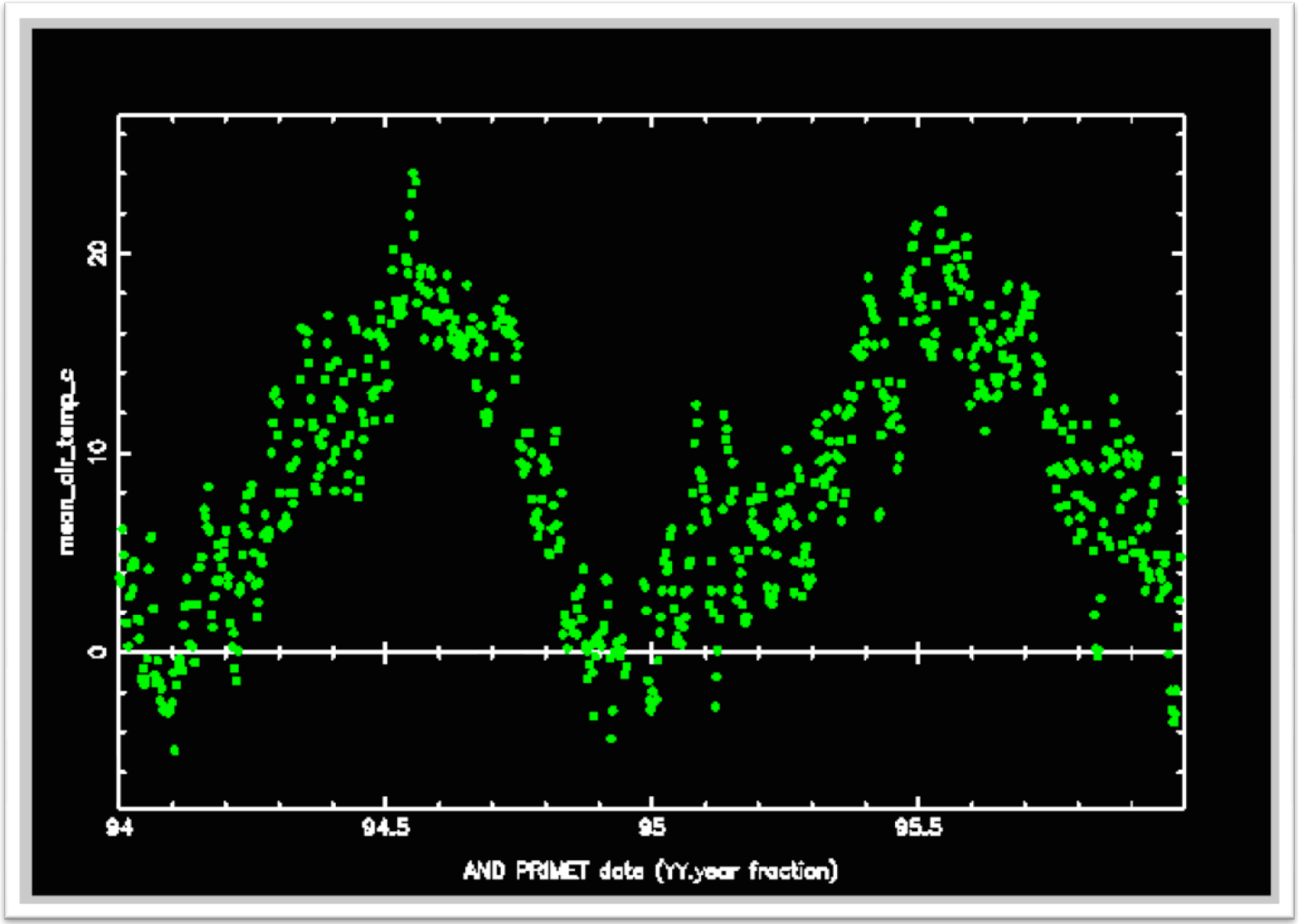
Year	Jan	#	Feb	#	Mar	#	Apr	#	May	#	Jun	#	Jul	#	Aug	#	Sep	#	Oct	#	Nov	#	Dec	#
1992		0		0		0		0	29.46	16	20.32	7		0	2.79	27		0		0		0		
1993		0		0		0	11.94	31	34.52	30	66.28	31	56.65	31	25.65	30	1.52	14		0		0		
1994		0		0		0		0	40.66	30	95.99	31	48.77	31	17.78	12		0		0		0		
1995		0		0		0		0	51.82	27	118.61	31	47.24	31	32.25	30		0		0		0		

ClimDB View: Vmany

AND PRIMET

Year	Month	Avg_mean_air_temp_c	#	Totl_precip_mm	#
1992	Jan	3.31	29	160.5	31
1992	Feb	5.78	29	200.9	29
1992	Mar	8.11	30	40	31
1992	Apr	9.96	30	289.5	30
1992	May	14.96	31	20.1	31
1992	Jun	16.65	30	53.1	30
1992	Jul	18.15	31	23.8	31
1992	Aug	18.61	31	1.1	31
1992	Sep	14.11	30	79.1	30
1992	Oct	9.77	31	176.2	31
1992	Nov	4.95	30	377.4	30
1992	Dec	.99	31	419.1	31
1993	Jan	-.58	31	242.5	31
1993	Feb	.63	28	94.7	28
1993	Mar	6.03	31	354.5	31
1993	Apr	7.73	30	393.5	30
1993	May	13.19	31	236.7	31
1993	Jun	12.79	28	87	30
1993	Jul	12.81	31	51.9	31
1993	Aug	14.53	31	4.7	31
1993	Sep	12.52	30	0	30
1993	Oct	8.55	31	42.4	31
1993	Nov	-.79	30	103.3	30
1993	Dec	-.23	30	277.5	31
1994	Jan	1.49	31	287.4	31
1994	Feb	.39	28	284.9	28
1994	Mar	3.94	31	156.3	31
1994	Apr	7.26	30	134.6	30
1994	May	12.17	31	91.7	31
1994	Jun	12.99	30	96.2	30
1994	Jul	18.03	31	2.4	31
1994	Aug	16.66	31	1.8	31
1994	Sep	15.1	29	45.3	30
1994	Oct	8.47	31	226	31
1994	Nov	1.02	30	435.9	30
1994	Dec	.01	20	242.3	31
1995	Jan	2.96	31	431.1	31

ClimDB View: Graphic Presentation



Guidelines Table of Contents

LTER CLIMATE DATABASE GUIDELINES

Lessons Learned

- **Develop prototype modules**
- **Maintain educational feed-back**
- **Design in partnership: scientists-datamanagers-system users**
- **Co-ordinate as a network but data resides at the site**
- **Capitalize upon site strengths**

Contributors

- **LTER Visionaries**
- **Climate Scientists**
- **Site Data Managers**
- **DM ClimDB Prototype Team**
  - **AND: D.Henshaw**
  - **NTL: R.Stubbs**
  - **PAL: K.Baker**
  - **NTL: B.Benson**
  - **BNZ: D.Blodgett**
  - **VCR: J.Porter**