World Radiation Data Center

2014: - 50 Years of Activity under BMO

GLOBAL ATMOSPHERE WATCH

Main Geophysical Observatory. Founded in 1849

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WRDC. Status Report

Anatoly Tsvetkov
Voeikov Main Geophysical Observatory
St. Petersburg

Meeting of the ET GAW WDC Managers,
At JMA Tokyo, Japan,
21-23 January 2014

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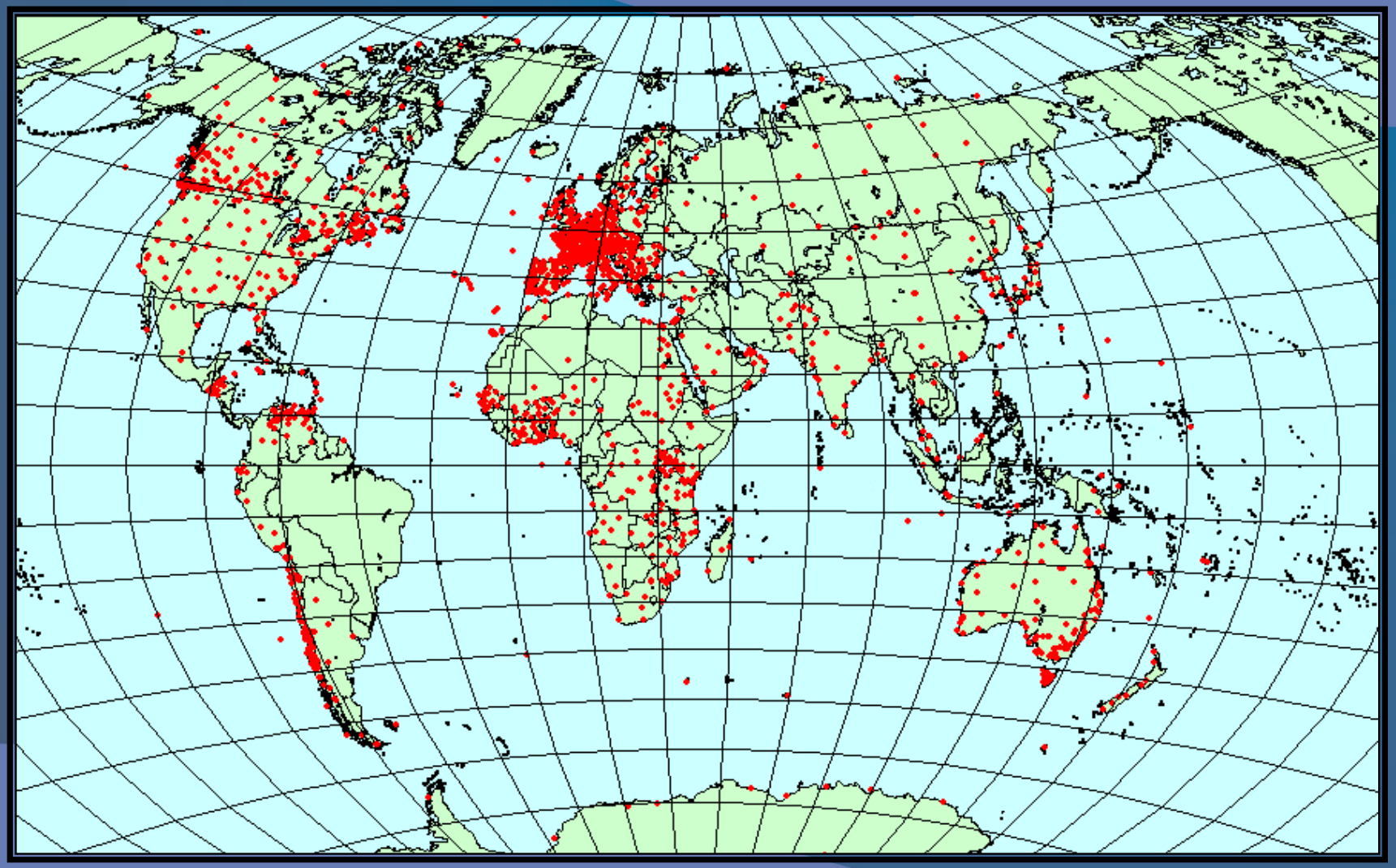

Radiometry Stations at WRDC Data Archive: 1964 - 2013.

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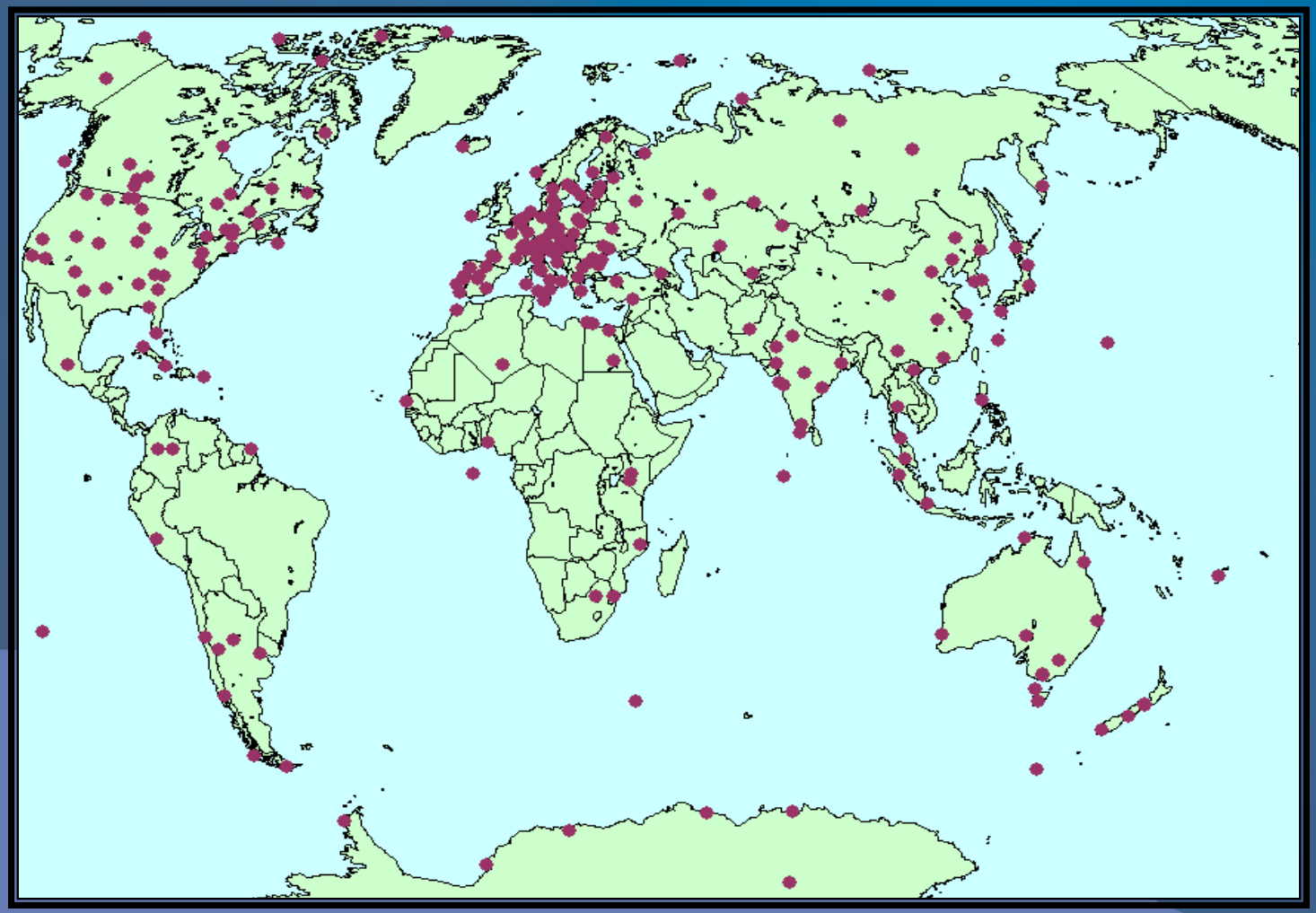
Stations GAW with Data in WRDC Archive and on the Site



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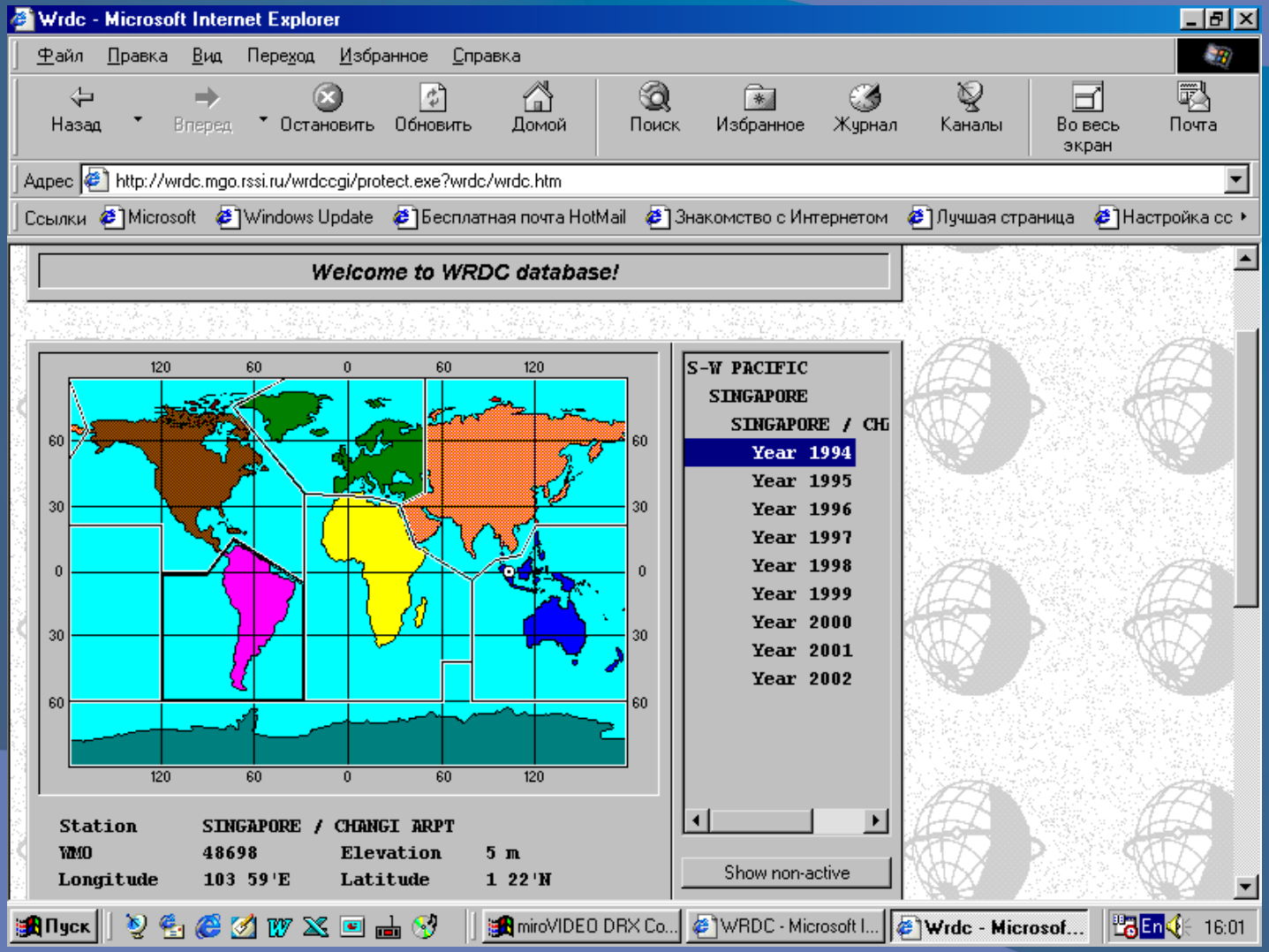
Main Page of WRDC Site



WRDC Site address: http://wrdc.mgo.rssi.ru

Metadata files sent to FTP GAWSIS (Started on April 2007)

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2010	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Number of stations	227	227	227	229	229	229	229	229	229	229	229	229
Date of sending	18/01	18/02	23/03	20/04	18/05	16/05	20/07	17/08	24/09	15/10	16/11	23/12
2011	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Number of stations	229		229	229		229	229			229		229
Date of sending	21/01		22/03	20/04		07/06	20/07			31/10		22/12
2012	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Number of stations	229		229	229	238	239	239		239			239
Date of sending	20/01		29/03	23/04	30/05	09/06	23/07		05/09			05/12
2013	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Number of stations	239	239	240		240	240			240	240		240
Date of sending	15/01	15/02	20/03		22/05	13/06			19/09	15/10		4/12

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Tasks formulated for Toronto 2010:

- *Formation of WRDC Metadata Database (MDB);* Done
- *Upload of MDB to the WRDC Server;* Done
- *Update Interface helpful to download the WRDC data.* Done

http://wrdc.mgo.rssi.ru/wwwroot/Output/country_index.html

HOME

GAW STATIONS

Station	GAW Station Type	Info	Daily data	Hourly data
ALGERIA				
TAMANRASSET	Global	Info	Daily data	Hourly data
ARGENTINA				
USHUAIA	Global	Info	Daily Data	Hourly Data
AUSTRALIA				
ALICE SPRINGS ARPT	Contributing	Info	Daily Data	Hourly Data
CAPE GRIM	Global	Info	Daily Data	Hourly Data
DARWIN ARPT	Regional	Info	Daily Data	Hourly Data
MELBOURNE ARPT	Regional	Info	Daily Data	Hourly Data
WAGGA WAGGA AMO	Regional	Info	Daily Data	Hourly Data
AUSTRIA				
GROSSENZERSDORF	Contributing	Info	Daily Data	Hourly Data
SONNBLICK	Global	Info	Daily Data	Hourly Data
WIEN / HOHE WARTE	Regional	Info	Daily Data	Hourly Data
CHILE Images				
EL TOLOLO	Regional	Info	Daily Data	Hourly Data

Station Information:

Name: El Tololo
WMO index: 85490
Latitude: 30.17 S
Longitude: 70.70 W
Elevation (m): 2030
Time: Local mean time, local time offset from GMT: -4.0
Instrumentation:
Global Horizontal Q: Kipp and Zonen Pyranometer
Diffuse horizontal D: Kipp and Zonen Pyranometer

Contributor:
Luis Gerardo Valle Lobos
Observator Meteorologico
Anexo 1762 1709
Fono 56-51-272652
Chile

Daily and monthly averages in J/cm² are computed according to WRDC protocol (and subject to rejection by the flagging protocol):

- Daily total values are the total of each hourly irradiance for the day
- Monthly averages are the sum of the daily values divided by the number of days available
- Monthly totals are the monthly average multiplied by the number of calendar days in the month
- Monthly statistics for hourly intervals are the sum and average of the hourly interval for each day under a process similar to the monthly averages and totals above.

flag (F) = 0 (blank in the table) means that a value has good quality flag = 1 - questionable value flag = 2 - bad or missing value

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Table of Metadata according the WMO recommendations

CATEGORY	METADATA TYPE
STATION IDENTIFIERS	Local Code WMO Code Name and aliases Active/Closed Beginning/End Date
GEOGRAPHICAL DATA	Latitude Longitude Elevation Dates of relocation
LOCAL ENVIRONMENT	Local land use/land cover Instruments exposure Skyline diagrams
STATION INSTRUMENTATION AND MAINTENANCE	Instrument Sheltering and Mounting Type of recording Calibration results Special Maintenance/Faults
DATA PROCESSING	Units Special codes Algorithms Calculations QC applied? (yes/no) Homogenization applied? (yes/no)
HISTORICAL EVENTS	Changes in the social, political and institutional environment

Метаданные: XML, HTML файлы МЦРД

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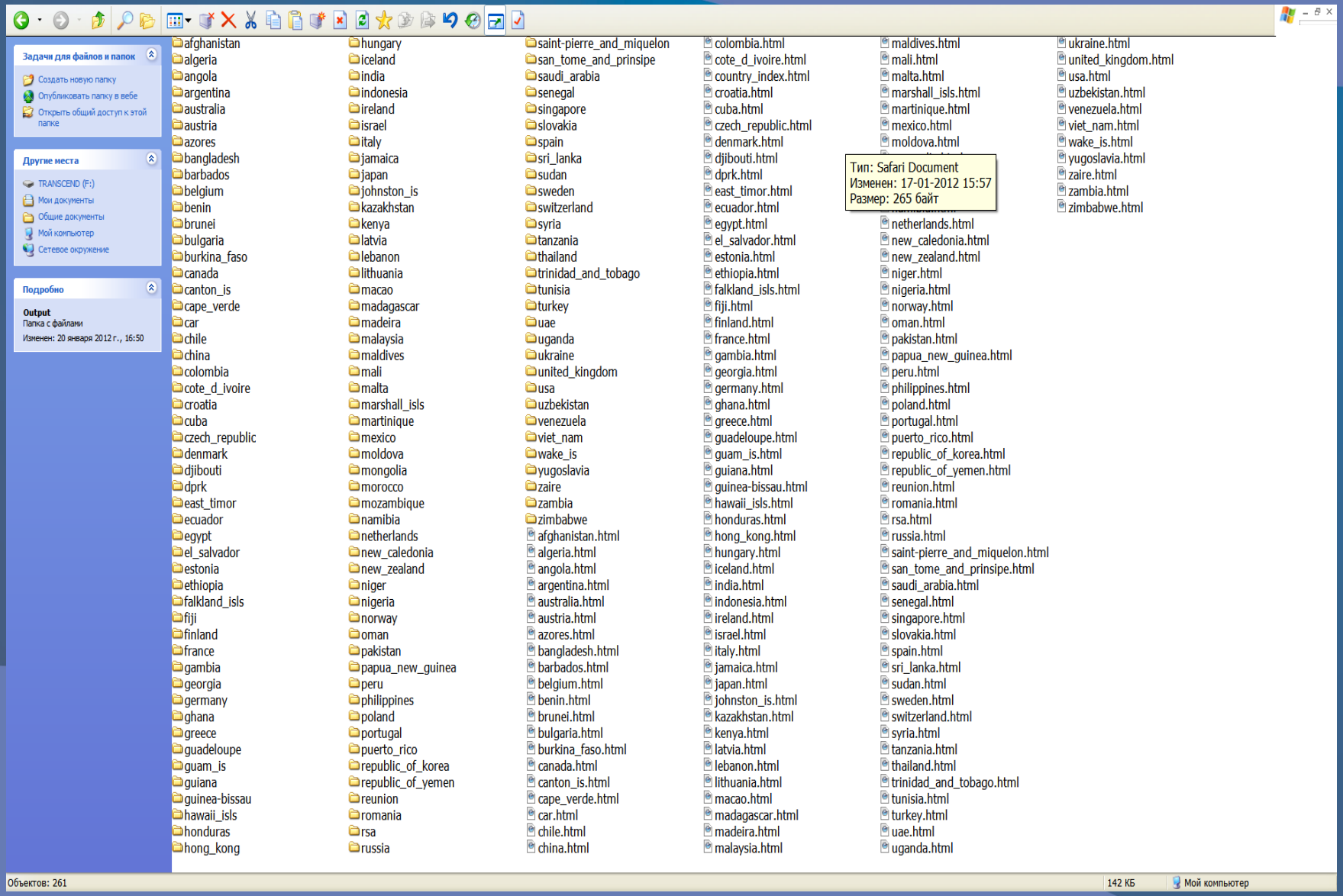

QC Flags used at WRDC

Flags of QC	Content
0	Good quality
1	Questionable data value according NWS
2	Missing or bad data value according NMS
3	Estimated (or interpolated) value according NWS
4	Polar Night
5	Questionable data value according WRDC
6	May be questionable if compared with climatic level
7	Low value as estimated at WRDC
8	Diffuse radiation > Global radiation more than 5%
9`	Bad data value according estimates at WRDC

1, 2, 3 – NMS information

5, 6, 7, 8, 9 – WRDC estimats

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Quality Checks at the WRDC

- *Physically meaningful limits*
- *Follow up Control according to WRDC procedures applied to daily and monthly totals*
- *Checks of calculated and actual totals*
- *Checks of hourly and daily values in the within setup ranges*
- *Control of exceedings above TOA values*
- *Control of values higher than those of probabilistic and climatological levels*
- *Control of correlation: data of neighbour sites*
- *Homogeneity Analysis (HA)*
- ***Build up of Metadata for 1500 Stations from paper archive New***

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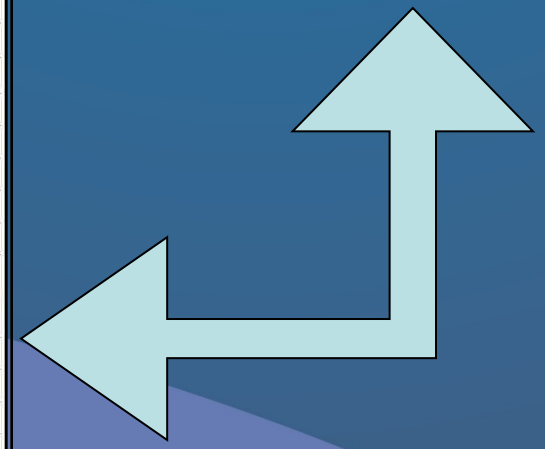
MINAMITORISHIMA
Instrumentation

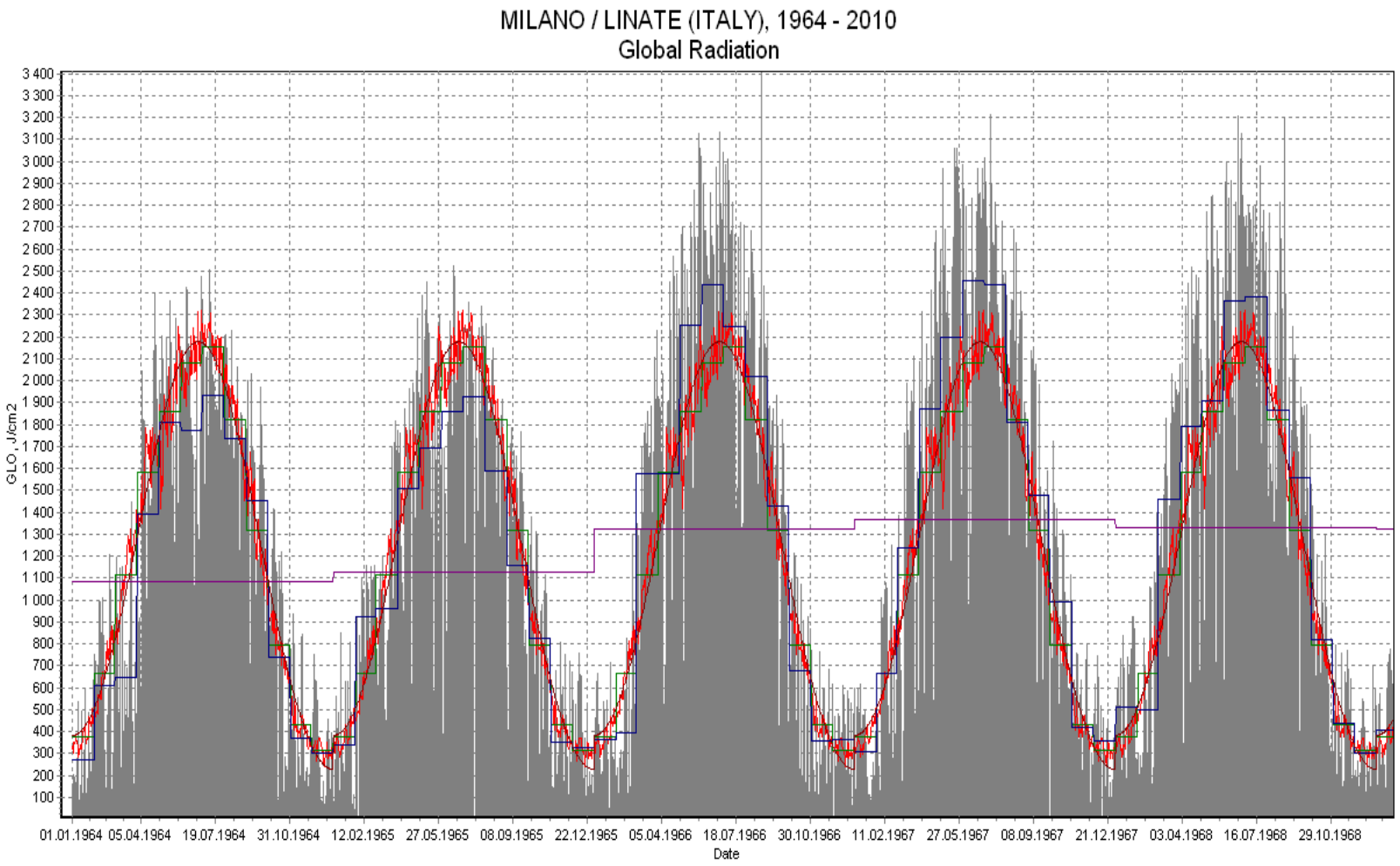
Element	Type of instrument	Start date of instrument
Global radiation	TT/MG/	
	TT	1974-03
	TT/EKO/	1987-03
	PREDE&KZ/CM3/	2002-02
Diffuse radiation	KZ/CMP22/	2010-04
Sunshine duration	SS/J/	
	SS/EKO/	1987-01
	SS/PREDE/	2002-02

STATION INFO

Region	2 (Asia)
Country	**JAPAN**
Station	**MINAMITORISHIMA**
WMO Index	47991
Changes of WMO Index and (or) station and country names	-
Latitude	24°17'N
Longitude	153°59'E
Elevation	6 m
Station relocation	-
Elements	Global Radiation Diffuse Radiation Sunshine Duration
Instrumentation	Info
Units	J/cm2
Scale	WRR
Time system	TST
Instrumentation relocation	-



Example


MILANO / LINATE (ITALY), 1964 - 2010
Global Radiation
GLO , J/cm2
3 400
3 300
3 200
3 100
3 000
2 900
2 800
2 700
2 600
2 500
2 400
2 300
2 200
2 100
2 000
1 900
1 800
1 700
1 600
1 500
1 400
1 300
1 200
1 100
1 000
900
800
700
600
500
400
300
200
100
01.01.1964
05.04.1964
19.07.1964
31.10.1964
12.02.1965
27.05.1965
08.09.1965
22.12.1965
05.04.1966
18.07.1966
30.10.1966
11.02.1967
27.05.1967
08.09.1967
21.12.1967
03.04.1968
16.07.1968
29.10.1968
Date

An Example of a kind of Metadata at WRDC

Station	Data available at WRDC					
	Data are submitting	Global Radiation postponed to be observed				
Nemuro						1.1964-9.2010
Sapporo	1.1964-12.2012					
Akita	1.1964-12.2012					
Miyako			1.1964-9.2007			
Sendai		1.1964-12.1971				
Wajima						1.1972-9.2010
Matsumoto			6.1972-9.2007			
Tateno	1.1964-12.2012					
Yonago				1.1964-9.2008		
Osaka		1.1964-12.1971				
Fukuoka	1.1964-12.2012					
Shionomisaki					1.1964-9.2009	
Shimizu			1.1964-9.2007			
Kagoshima	1.1964-12.2012					
Shishijima	8.1969-12.2012					
Naha	1.1968-12.2012					
Ishigakijima	1.1969-12.2012					
Minaminorishima	9.1969-12.2012					

An Example. Cover Letters with info

- Letter of 3.03.2008 – сообщают о прекращении измерений суммарной радиации на станциях Miyako, Matsumoto, Shimizu
- Letter of 23.03.2009 – сообщают о прекращении измерений суммарной радиации на станции Yonago
- Letter of 24.05.2010 – сообщают о прекращении измерений суммарной радиации на станции Shionomisaki
- Letter of 10.02.2011 – сообщают о прекращении измерений суммарной радиации на станции Nemuro, Wajima

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WRDC. Sunshine Duration from Japan

Station	Data available at WRDC		
	Continued	Submission stopped	
Nemuro			1.1972-9.2010
Sapporo	1.1969-12.2012		
Akita	1.1972-12.2012		
Miyako			4.1972-12.2010
Sendai		1.1969-12.1972	
Wajima			1.1972-12.2010
Matsumoto			6.1972-12.2010
Tateno	1.1969-12.2012		
Yonago			5.1972-12.2010
Osaka		1.1969-12.1971	
Fukuoka	1.1969-12.2012		
Shionomisaki			1.1972-12.2010
Shimizu			1.1972-12.2010
Kagoshima	1.1972-12.2012		
Shishijima	1.1971-12.2012		
Naha	1.1969-12.2012		
Ishigakijima	1.1969-12.2012		
Minaminorishima	1.1971-12.2012		

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USSR CHIEF ADMINISTRATION OF THE HYDRO-METEOROLOGICAL SERVICE
ГЛАВНОЕ УПРАВЛЕНИЕ ГИДРОМЕТЕОРОЛОГИЧЕСКОЙ СЛУЖБЫ СССР

A.I. VOEIKOV MAIN GEOPHYSICAL OBSERVATORY
ГЛАВНАЯ ГЕОФИЗИЧЕСКАЯ ОБСЕРВАТОРИЯ ИМЕНИ А.И. ВОЕЙКОВА

SOLAR RADIATION AND RADIATION BALANCE DATA

(THE WORLD NETWORK)

СОЛНЕЧНАЯ РАДИАЦИЯ И РАДИАЦИОННЫЙ БАЛАНС

(МИРОВАЯ СЕТЬ)

SUPPLEMENT
ПРИЛОЖЕНИЕ

SHORT CHARACTERISTICS OF THE ACTI NOMETRIC
STaTIONS POSITION

КРАТКАЯ ХАРАКТЕРИСТИКА МЕСТОПОЛОЖЕНИЯ
АКТИНОМЕТРИЧЕСКИХ СТАНЦИЙ

SPONSORED BY WORLD METEOROLOCICAL ORGANIZATION
ИЗДАНИЕ ПО ПОРУЧЕНИЮ ВСЕМИРНОЙ МЕТЕОРОЛОГИЧЕСКОЙ ОРГАНИЗАЦИИ

LENINGRAD ЛЕНИНГРАД
1968

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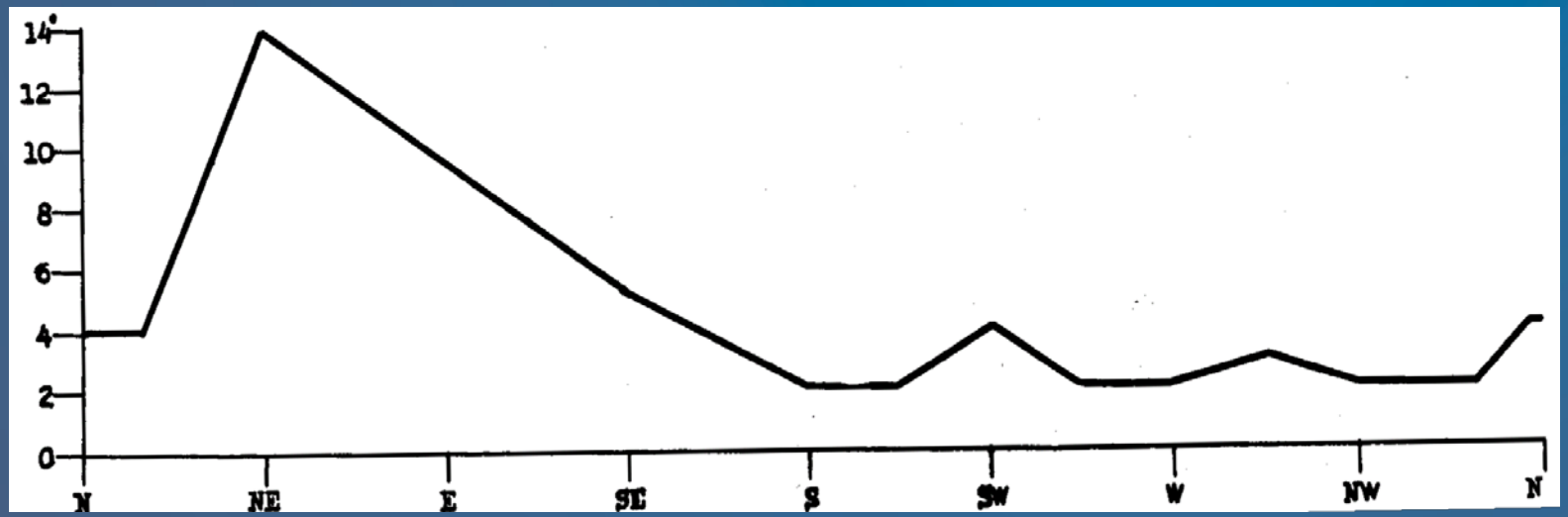
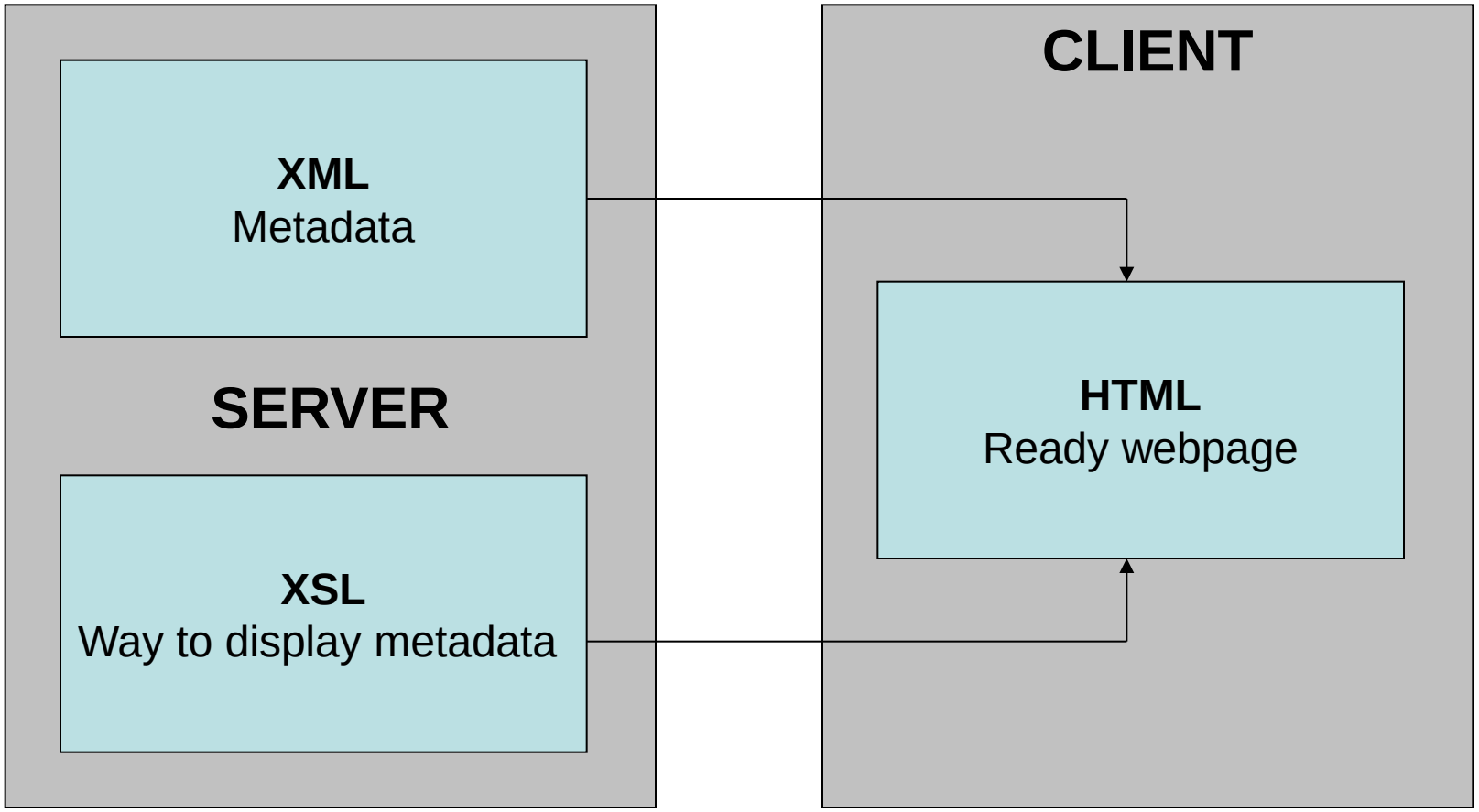
47. PETROPAVLOVSK NA KAMCHATKE H=32 metres

•The station is situated on the eastern shore of Avacha Bay surrounded by mountains 400 to 500m high, which are covered with the leaf-bearing forest and shrubs.

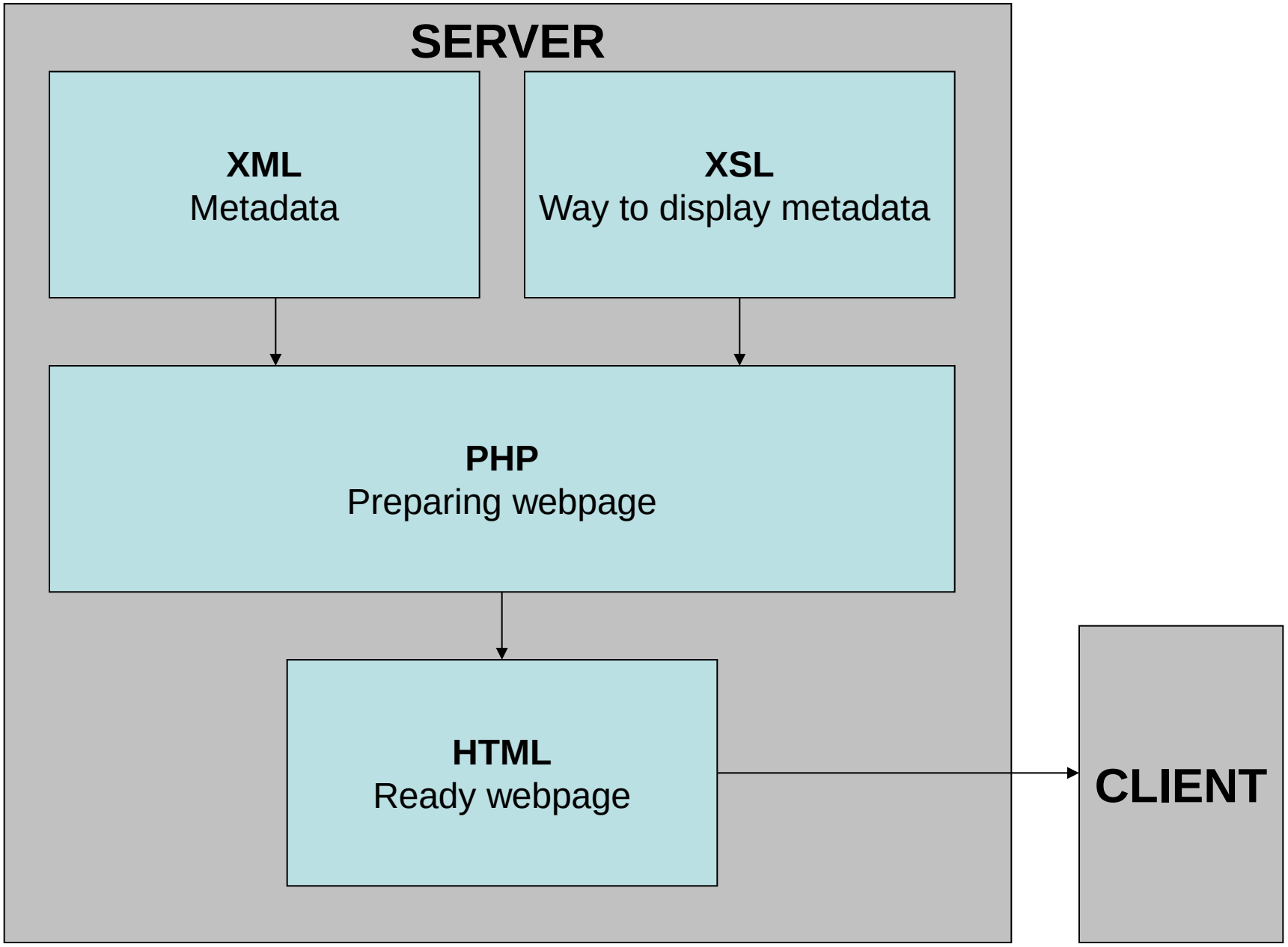
•The thermoelectric pyranometer (Tt/M/) is installed on the meteorological site which is at the high extremity of the cape and to the west borders upon a sheer rocky precipice.

•The underlying surface consists of a loamy and gravelly soil covered with grass in summer and snow in winter. The nearest buildings are located below station level.


14°
12
10
8
6
4
2
0
N
NE
E
SE
S
SW
W
NW
N



Supported by MS Internet Explorer only



Supported by all browsers

Связывает XML (смысловая информация) и XSL (алгоритм ее отображения) в HTML-страницу, отображаемую пользователю. Причем, происходит это НА СЕРВЕРЕ,
а не у клиента. Таким образом, безразлично, какой у клиента браузер.

2) Как связаны XML и PHP?

3) Какова общая структура модели PHP в нашем случае. Желательно мне слайд в презентацию

Сделал фрагмент презентации (см. присоединенный файл).
Там два слайда.
Один - неправильный способ (без PHP, при этом итоговый HTML генерируется у клиента и зависит от причуд его браузера; нормально воспроизводится только Internet Explorer-ом).

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Reference

1. E. Aguilar, et all. GUIDELINES ON CLIMATE METADATA AND HOMOGENIZATION. WMO/TD No. 1186 World Meteorological Organization. 2003.

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Thank you!