

The Specola sunspot drawing archive

Renzo Ramelli, IRSOL

On behalf of
Marco Cagnotti

SSN4

Locarno, 20.5.2014

Waldmeier era (1957-1980)

- Sunspot drawings, archived in Zurich
- Still at Specola:
 - Spectroheliograms Ca K (list on the WEB)
 - Halpha filtergrams (list on the WEB)
 - Photospheric photo (list on the WEB)
 - Cortesi – Pittini observing logbooks

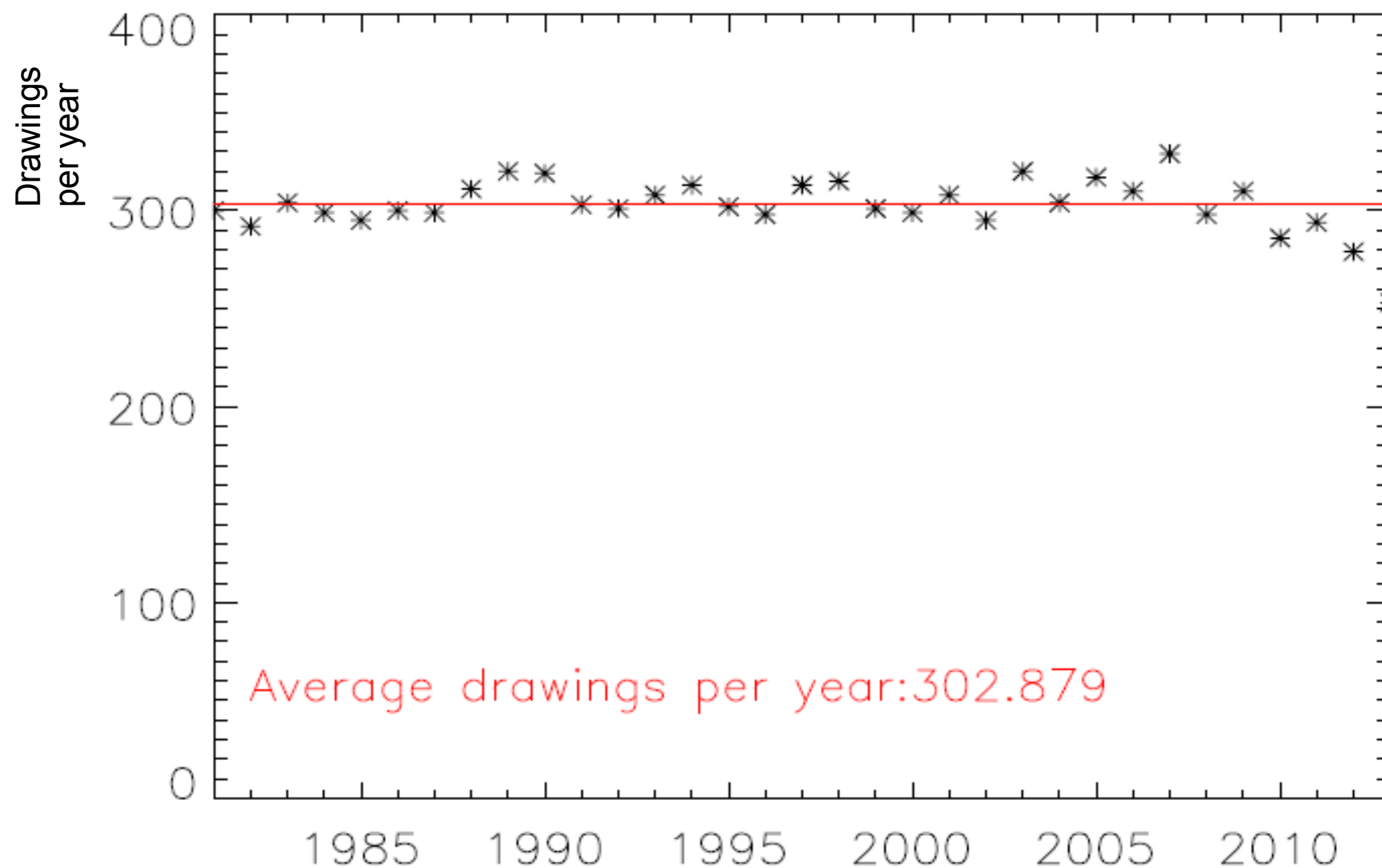
Logbook Cortesi-Pittini

DISEGNO														Cortesi			Pittini			Fotosfera			Cromosf.			Note	Tem
OS	Nr	Data	TIME	Imm	$\Delta\phi$	L_p	B_p	D_p	F_p	g	f	R/k	g	f	R/k	Dic	R	Fac	Fac	H _k	K	N _k					
P	M	1	396	1030	4	-1.5	39.5	-3.1	+1.9						7	49	119	P	P	P	P	P	P	1			
CP	G	2	417	1100	3-4	-1.8	26.1	-3.2	+1.4		8	45	125		8	46	126	C	CP	C	P	CC	-	2			
CP	V	3	447	1100	4-5	-0.9	12.9	-3.3	+0.9		6	62	122		6	50	110	C	CP	C	P	CC	P	3			
P	G	4	375	1000	2-3	-0.5	0.3	-3.5	+0.5	1175	9	80	170		9	88	178	P	P	P	P	P	P	4			
P	D	5	396	1030	3	+0.1	34.9	-3.6	0	1697					9	114	204	P	P	P	P	P	P	5			
P	L	6	365	945	2-3	+0.5	33.4	-3.7	-0.5	1851					9	126	216	P	P	P	P	P	P	6			
P	M	7	438	1130	3-5	+0.9	32.0	-3.8	-1.0	2013					10	165	265	P	P	P							
CP	M																										
CP	G	8	448	1145	3	+1.9	29.5	-4.0	-2.0	2069	10	139	239		10	180	280	P	CP	P	C	PP	C	7			
CP	V	9	447	1100	3-6	+2.4	28.7	-4.1	-2.5	1944	10	149	249		10	187	287	P	CP	P	C	PP	C	8			
C	S	11	531	1345	2-3	+2.0	26.1	-4.2	-3.0	1560	8	127	207					C	C	C							
C	D	11	375	1000	2-3	+2.1	25.0	-4.3	-3.4	1535	10	109	209		10	175	245	C	C	C	-	CC	-	9			
C	L																										
CP	M																										
CP	M	12	535	1000	3	+4.6	21.5	-4.6	-4.8	1351	10	98	198		13	98	228	C	CP	C	P	CC	P	10			
CP	G	13	604	1530	2-3	-5.6	19.3	-4.7	-5.4	1233	10	99	199					C	C	C							
CP	V	14	356	1030	3-4	+5.9	18.8	-4.8	-5.8		8	102	182		8	79	159	C	CP	C	P	CC	P	11			
P	G	15	396	1030	3-4	+6.2	17.5	-4.9	-6.2						8	64	144	P	P	P							
P	D	16	396	1030	3-4	+6.8	16.5	-5.0	-6.7						6	57	117	P	P	P	P	P	P	12			
P	L	17	385	1015	3	+7.0	14.5	-5.1	-7.1	1105	6	79	139		6	74	134	P	CP	P	P	P	P	13			
CP	M	18	417	1100	2-3	+7.6	13.5	-5.2	-7.6	375	7	69	139		7	79	149	P	CP	P	C						
CP	M	19	375	1000	2-3	+8.1	12.3	-5.3	-8.0	379	9	87	177		10	103	203	P	CP	P	C	PP	-	14			
CP	V	20	396	1030	3-4	+8.9	10.8	-5.4	-8.5		8	62	142		8	71	151	P	CP	P							
CP	V	21	396	1030	4	+9.1	9.6	-5.5	-8.9		9	87	177		9	77	167	P	CP	P	C	PP	C	15			
C	S	25																									
C	D	22	354	930	2-3	+9.8	70.9	-5.6	-9.8	578	8	88	168		8	83	163	C	CP	C	C	CC	C	16			
C	L	23	354	930	2-3	+10.0	57.7	-5.7	-10.2	697	6	70	130		6	72	132	C	C	C	C	CC	-	17			
CP	M	24	386	1030	2-3	+10.6	44.0	-5.8	-10.7	568	6	61	121		6	70	130	C	CP	C	P	CC	-	18			
CP	M	25	365	945	2-3	+10.4	32.2	-5.9	-11.1	518	7	77	147		7	59	129	C	CP	C	P	CC	P	19			
CP	C	26	406	1045	3-4	+11.6	17.5	-5.9	-11.5	455	6	76	136		6	71	131	C	CP	C	P	CC	P	20			
CP	V	27	365	945	3	+12.1	4.9	-6.0	-11.9	582	10	61	161		10	59	159	C	PP	C	P	CC	P	21			

From 1981

- **Drawing archive** digitized with the scanner and available on the Web
- Database with groups, classification, latitude and countings
- We plan to transfer the data in a Mysql database accessible through the WEB

Some statistics



Some statistics 1981-2013

Observers:

• Sergio Cortesi	6983	(till now)
• Andrea Manna	913	(1989 - now, mainly on Sunday)
• MarcoCagnotti	688	(2008 - now)
• Michele Bianda	630	(1983 - now)
• Marco Cortesi	463	(1982 - 1989)
• Roberto Cortesi	148	(1981 - 1983)
• Elena Altoni	49	(2002 - 2007)
• Renzo Ramelli	41	(2003 - now)
• Araldo Pittini	34	(1998 - 2001)
• Edy Alge	27	(1994 - 2001)
• Anna Cairati	10	(2009 - 2011)
• Michele De Lorenzi	8	(1981 - 1983)

Transition Cortesi – Cagnotti as main observer

- Marco Cagnotti started in 2008 with a part time reduced rate
- Every year he increased gradually his working rate until 2011
- Since 2011 → director of Specola

2008:

- Andrea 42
- MarcoCagnotti 36
- Sergio 196

2009:

- Andrea 43
- MarcoCagnotti 32
- Sergio 226

2010:

- Andrea 39
- MarcoCagnotti 146
- Sergio 97

2011:

- Andrea 50
- MarcoCagnotti 170
- Sergio 58

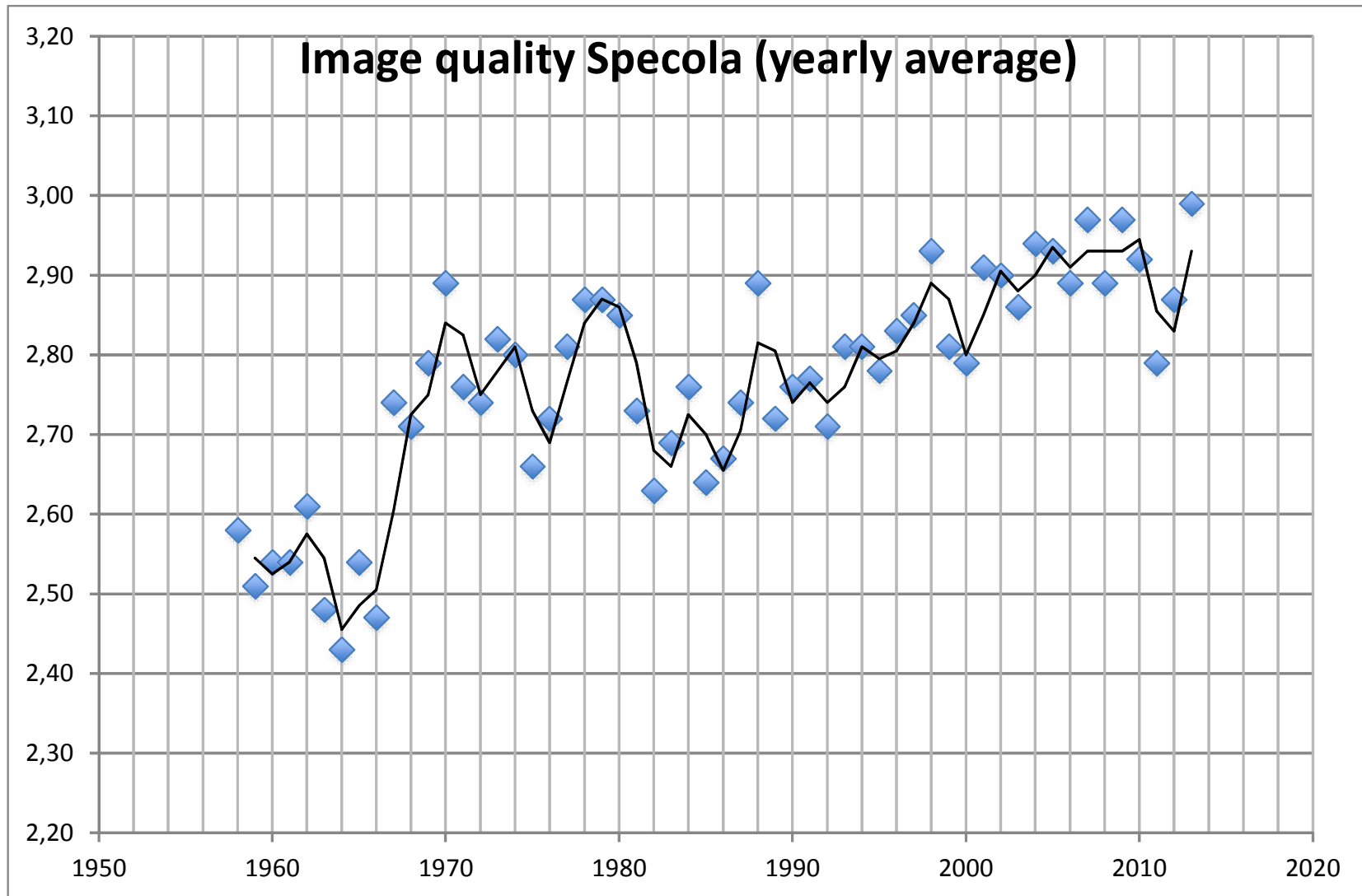
2012:

- Andrea 46
- MarcoCagnotti 147
- Michele 5
- Sergio 81

2013:

- Andrea 42
- MarcoCagnotti 157
- Sergio 46

Image quality (seeing)



1= very good, 5= poor seeing

Future developments

- We plan to install an automatic Halpha telescope on the roof of the Specola, and make the images available through the WEB.
(The telescope has already been built at Fachhochschule RheinMain, Germany and will be transported to Specola)
- Production of Ursigrams?

The future

- ... and inclusion in the GCOS network (Global Climate Observing System) → see talk of Ambrosetti on Thursday.
 - This will guarantee the long term surviving of the Specola and will probably allow to increase the financing, that now is very limited (budget < 50kFr)
 - The whole community will benefit if the SSN will be considered as an important long term data series connected with the climate that should be included in the GCOS program.