Secrets from the OHP archives : seeing back in time

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Main contents of the archives

- Spectroscopic plates
  - 193cm coudé
  - 152cm coudé
  - Other spectrographs
- Direct plates
  - 60/87cm Schmidt telescope
  - Other telescopes
- Objective prism plates
  - 40cm GPO (3 versions)
  - 16cm PPO
  - 60/87cm Schmidt

193cm coudé

- Active from 1959 until 1985. Five schmidt cameras and two gratings offered 19 different combinations of resolution/wavelength coverage : ranging from 3.1 Å/mm (camera **V** in the yellow) to 78 Å/mm (camera **I** in the infrared). In all, nearly 17000 plates were taken.

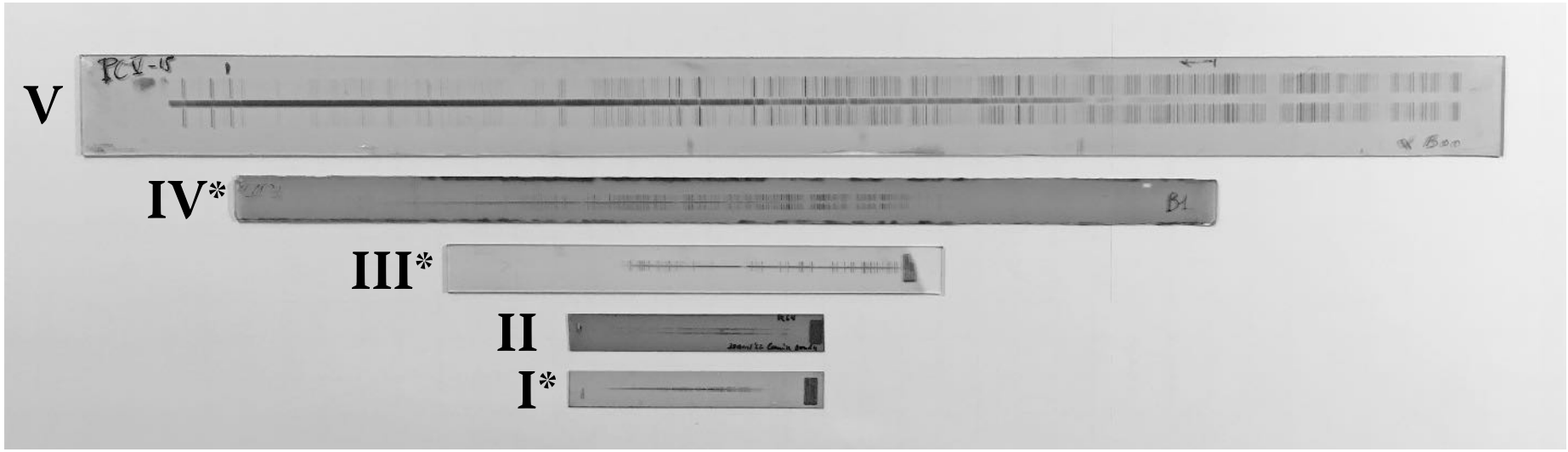


Plate dimensions : 36cm, 25cm, 13cm, 6.5cm and 6.5cm (*) Frequently used cameras

152cm coudé

- Active from 1970 until 1989. Three schmidt cameras and three gratings offered 9 different combinations of resolution/ wavelength coverage : ranging from 7.2 Å/mm (camera **C** in the blue or yellow) to 31.3 Å/mm (camera **A** in the red-infrared). In all, more than 20000 plates were taken.

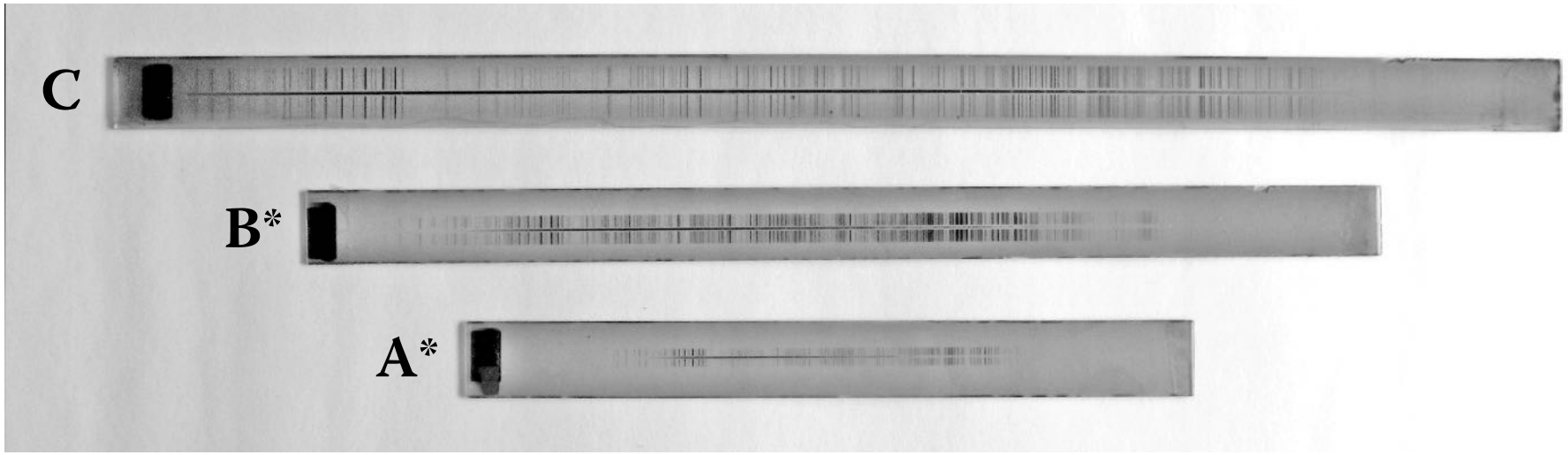
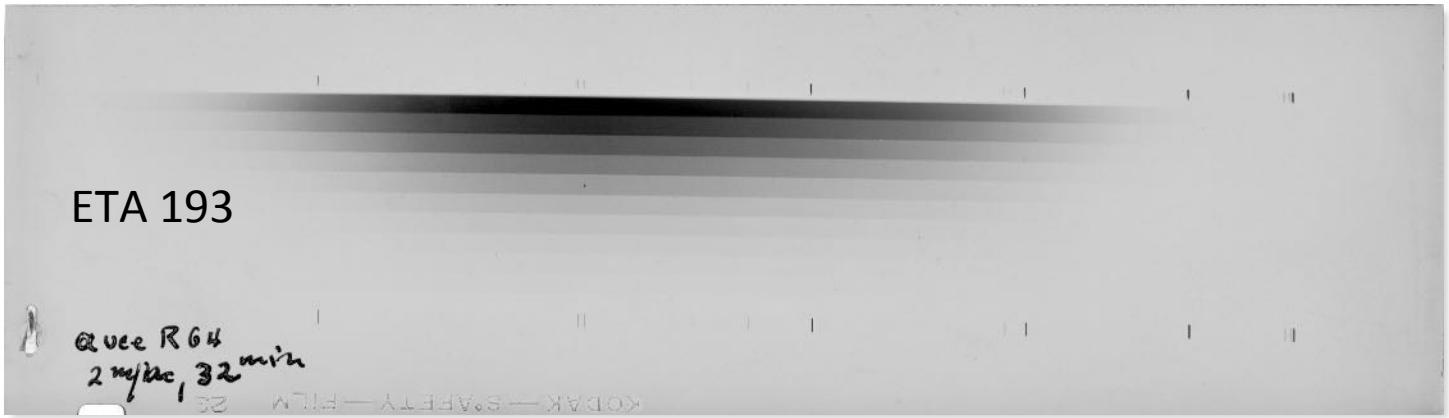
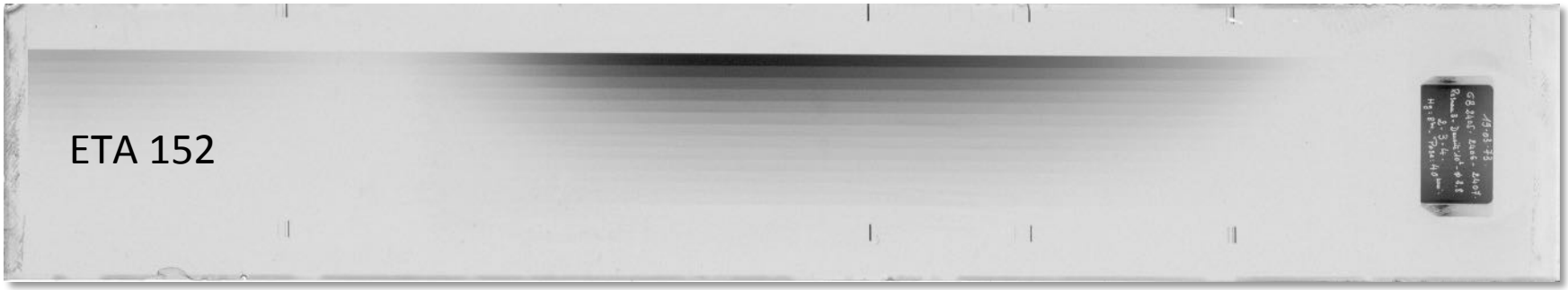


Plate dimensions : 31.5cm, 25cm and 16.5cm (*) Frequently used cameras

Calibration plates

Photometric calibration was done using special grating spectrographs, one at the 193 dome and a later one for the 152 dome, with plates cut from the same emulsion batch.





Other spectrographs

- At the Newtonian focus of the 120cm telescope two different instruments were often used :
  - **C** spectrograph, used between 1944 and 1974.
    A single-prism gave a dispersion of 77 Å/mm at Hγ.
  - **Marly** spectrograph, used between 1980 and 1995.
    Two gratings gave dispersions of 40 or 80 Å/mm.
- In all, nearly 8500 plates are catalogued, some with up to six spectra exposed on the same 6x9cm plate.

Views of some of the stacks

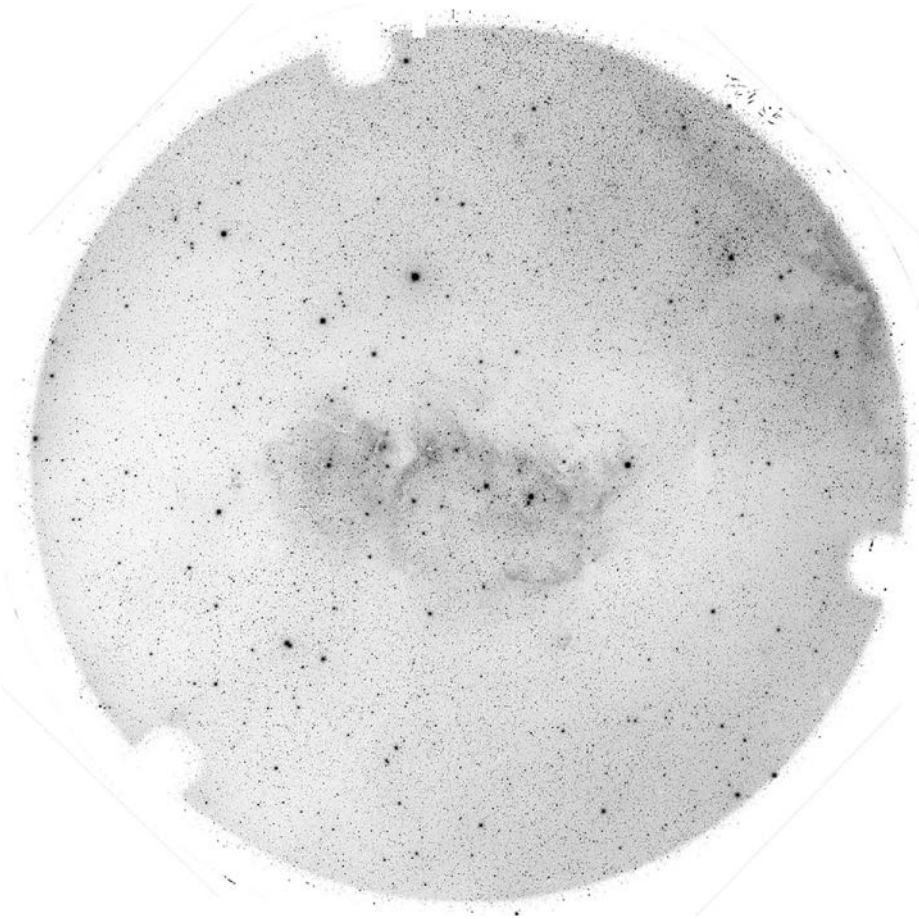
193cm storage area

152cm storage area

Direct plates

- The 60/87cm **Schmidt telescope** was used between 1970 and 1997, with over 7300 recorded exposures. Field of view is 4.1° with a plate scale of 98.8 "/mm.
  - 17.5cm round film was used until July 1974 and 16x16cm glass plates thereafter. The corrector plate was changed in June 1975.
  - research programs carried out with the Schmidt included : searches for minor planets and comets, studies of HII regions and galaxies, variability of novae, supernovae, radio and X-ray sources.
- Direct photography at the Newton and Cassegrain foci was also done with the 80cm, 120cm and 193cm telescopes. For the 80cm, earliest plates date from 1933.

Schmidt direct plate samples



GS421 IC1848 30min 103aF 22/09/71

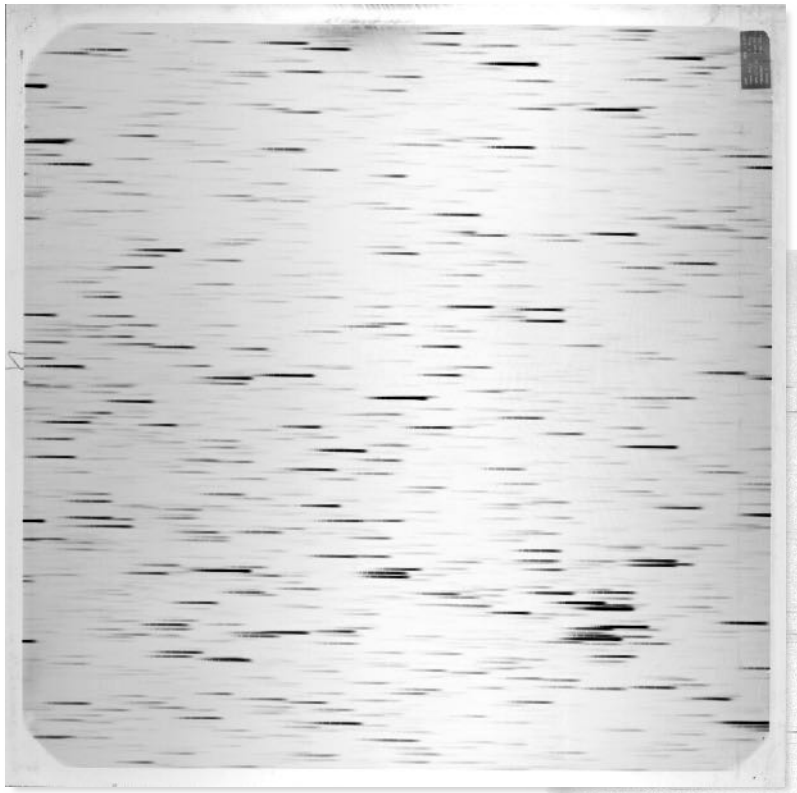
GS2102 NGC6960 30min 103aF 20/07/74

Objective prism plates

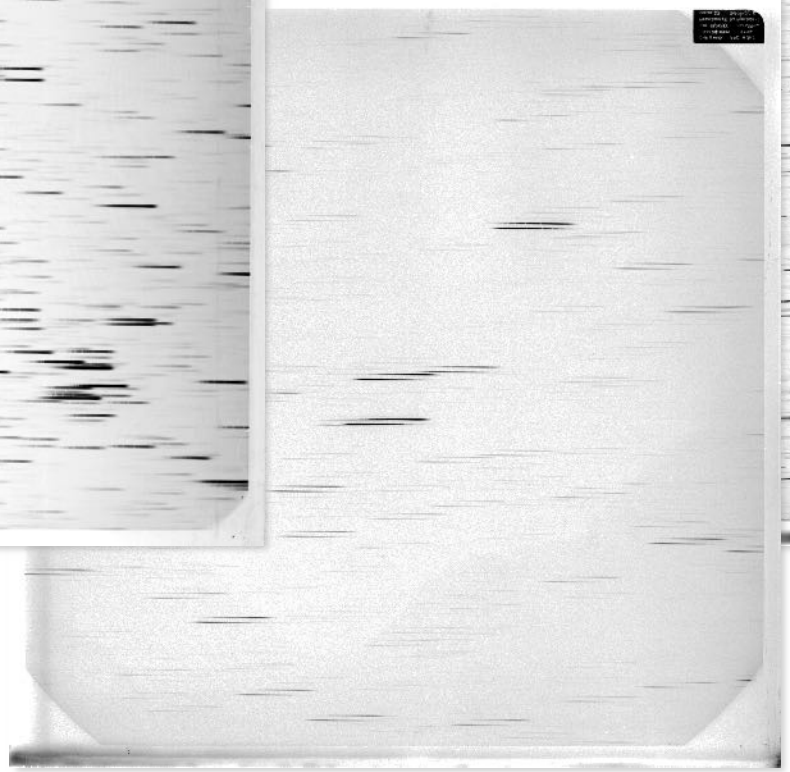
- 40cm GPO astrographs : 2° field. 110 Å/mm at Hγ.
  Zeekoegat (1961-1970), La Silla (1969-1984), OHP (1957-1984). In all, more than 13000 plates were taken.
- 16cm PPO astrograph : 4° field. 87 Å/mm at Hγ.
  More than 4500 plates were taken from 1946 through 1993.
- 60/87cm Schmidt with 62cm prism : 200 Å/mm at λ4225.
  1700 plates were taken from 1974 through 1993.

  These 16x16cm plates have a second exposure with the prism rotated by 180°, for radial velocity determinations. The PPO used a 6x9cm format for the first 400 plates.

Objective prism plate samples



Ja1835 GPO
80min 29/02/76
(no reversal)



H3567 PPO 2x1h. 13/12/85

JS279 Schmidt
2x1h. 23/12/77

Objective-prism storage cabinets

Access to metadata

- The original paper observing logbooks for most instruments are kept in the plate stacks for easy access.
- Partial metadata for spectroscopic plates taken between 1967 and 1983 were digitized and ~50 catalog issues printed, but the original records (punched cards, tapes) have been lost. Spot checks indicate some errors exist.
- Remote access to the original logs could be made possible by scanning them, but transforming these into machine-readable data is unfeasible due to the handwriting.

Observing log & catalog samples

OBSERVATOIRE DE HAUTE PROVENCE

REGISTRE DES OBSERVATIONS ASTRONOMIQUES

N° 0033

Coupole : 193

Instrument : Spectro Coude 193

Date	15-2-61	→ "	15-2-61	→ "	→ "	→ "
N° du cliché	W 685	W 686	W 687	W 688	W 689	690
N° du ~~spectre~~ Reseau	B1	B1	B1	B1	B1	B1
Astre	Essai comparaison	→ "	Eclipse Couronne	→ "	→ "	fond du ciel
Ascension droite / Déclinaison			du jour	→ "	→ "	45° du Soleil du Soleil
Magnitude type spectral						
Heure Début / Fin			7h33	→ "	→ "	8h45
Durée de pose			50 sec	15 sec	↓	
Conditions atmosphériques Turbulence						
Conditions atmosphériques Transparence			Tres bonne	→ "	→ "	
Conditions photographiques Emulsion	IN Hyp + Vo2	→ "	IN Hyp. Vo2	→ "	→ "	
Révélateur	D19 trop.	→ "	D19 trop.	→ "	→ "	
Fente ou Diaphr.	130 µ	→ "	130 µ	→ "	→ "	130 µ
Comp. ou Filtre	Ne + AR } 5 sec + Vo2	Ne + AR } 25 sec + Vo2	Ne + AR } 5 sec Vo2	→ "	→ Ne + AR 5 sec Vo2	
Etalonnage photom.	oui		oui	→ "	→ "	
Observateur	Wlerick, Vecaure, Figueire	→ "	Wlerick	→ "		
Qualité du cliché			1			
OBSERVATIONS	Prismes 30 chassis 4	→ " Chassis 5	Prismes 30 chassis 3	→ " chassis 2	→ " chassis 4	Prismes 30 chassis 6

Solar corona spectra from Feb 1962 eclipse : missing from archive!

OBSERVATOIRE HAUTE PROVENCE

CLICHES SPECTROSCOPIQUES Janvier à Avril 1967

HD	BD divers		AR	D	mg	Sp	série N°	Observateur	JJ	heure milieu pose	Qualité	Etalonnages
000144	63	02107	00038	6355	055	B8	1100427	077	9521	1856	6	45
001280	37	00034	00145	3824	044	A2	0101569	015	9525	1810	6	12
001677	35	00053	00185	3536	073	A0	0803624	007	9515	1830	8	24
003196	-04	00062	00327	-0352	052	G0	0803579	066	9493	1826	7	25
003196	-04	00062	00327	-0352	052	G0	0803586	066	9496	1911	8	25
003196	-04	00062	00327	-0352	052	G0	0803594	066	9497	1910	7	25
003196	-04	00062	00327	-0352	052	G0	0803598	066	9498	1812	8	25
003196	-04	00062	00327	-0352	052	G0	0803599	066	9498	1914	2	25
003212	33	00075	00330	3412	078	A2	0803624	007	9515	1919	2	24
004666	77	00027	00473	7741	068	A5	0803619	007	9513	1900	8	2
005221	63	00111	00520	6406	086	A2	0803634	007	9521	1903	2	2
005394			00537	6027	023	B0	0403334	001	9513	1803	8	22
005394			00537	6027	023	B0	0403335	001	9513	1846	2	22
005797	59	00163	00575	6011	088	A0	0803635	007	9522	1905	8	2
006118	31	00168	01001	3132	055	B9	1100420	077	9515	1807	6	46
006226	46	00245	01010	4722	067	B8P	1100421	077	9516	1756	6	46
006300	50	00212	01018	5045	065	B3	1100425	077	9518	1808	6	46
006658	43	00234	01051	4341	052	A2	0803618	007	9509	2003	8	2
006676	57	00200	01055	5800	057	B8	1100421	077	9516	2022	2	46
006676	57	00200	01055	5800	057	B8	1100427	077	9521	1919	6	46
006811	46	00275	01066	4659	043	B8	1100420	077	9515	1835	6	46
006961	54	00236	01080	5453	045	A5	0302448	015	9525	1841	6	12
006961	54	00236	01080	5453	045	A5	0101530	015	9522	1840	6	12
007374	15	00177	01115	1552	059	B8	0803618	007	9509	1941	8	2
008538	59	00248	01225	5959	028	A5	0302449	015	9525	1856	6	1

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Plate inventory

- Plates in a given series are stored chronologicaly in metal containers. A large number of returned plates from different instruments are still in their packages and have not been replaced in their containers. In addition, many plates are found outside their containers, possibly the result of earlier returns.

- Until a complete inventory is made, the number of plates missing or still in the users' institutions remains unkown. Also, many plates were lost or damaged in 1988 due to inundation of the main building basement during a large storm.

Summary

Haute Provence Observatory holds a large collection of photographic plates taken with different telescopes and instruments over nearly half a century.

Spectroscopic, direct and objective-prism plates have been conserved, together with the observing logs containing complete metadata.

Fast and accurate digitizing tools may allow full recovery of information gathered in the past if motivating scientific programs are proposed.