Sunday, October 20, 2019

# Ressources for Astronomy career inspirations : My research, activities and career pursuit.

## Measuring the Universe at Paris Sciences Letters University on 5 weeks external with certificate.

**( update February 12 2020 : This stage will re start this year due lot of impossible schedules )**

**October:**

**Admission as an active member of the federation Open space maker**

**(Status Updated October 23)**

**The active members of the Open Space Makers Association, have the general role of promoting and developing the Federation - Open Space Makers initiative.**

**This includes the following activities:**

**Being a Federation ambassador, through interventions in fablabs / hackerspaces or any other place, relay news via social networks and other networks, physical and digital, which the active member is part.**

**Contribute to the development of the "infrastructure" Federation, being involved and active in the process of continuous improvement of the web platform, tools and strategies of communication, and more generally of the activities carried out by the association in the service of the objectives of the Federation.**

**To be the privileged point of contact within the association Open Space Makers of one or more fablabs / industrial / institutional / partners members of the Garden Federation.**

**Sponsorship of newcomers on the web platform: The sponsor will be the preferred point of contact for the questions of the newcomer, and will help discern concrete actions to implement to get involved in a particular project, or to start his own. project. It will also be a privileged system for taking feedback on the Federation platform and initiative, and will fully contribute to the system of continuous improvement.**

**which is a collaboration between the federation and CNES**
**( main space funding agencies for France, CNES / Center National d'Etudes Spatiales are fully responsible vis-à-vis European (ESA), American (NASA), and Japanese (JAXA) space agencies for development, financing and the delivery of space instruments within the specified time )**

**Fab Lab of the Cité des Sciences to work and have skills , with experts.**

**Beginning of a university diploma classes with the Observatoire de Paris and Paris Sciences Lettres.**

Galaxy and cosmology division
60h
P2 ( of 7 )
30% female

P1 From stars to planets

P2 Lights on the Universe: Cosmology and Extragalactic Astrophysics

P3 Celestial mechanics
P4 Fundamentals astronomy-astrophysics
P5 Windows on the universe
P6 Instrumentation
P7 Planetary sciences

The Paris Observatory or Observatoire de Paris or Observatoire de Paris-Meudon , a research institution of PSL Research University, is the foremost astronomical observatory of France, and one of the largest astronomical centres in the world.

Its historic building is to be found on the Left Bank of the Seine in central Paris, but most of the staff work on a satellite campus in Meudon, a suburb southwest of Paris.

Administratively, it is a grand etablissement of the French Ministry of National Education, with a status close to that of a public university.

Its missions include:

- research in astronomy and astrophysics
- education (four graduate programs, Ph.D. studies)
- diffusion of knowledge to the public.

It maintains a solar observatory at Meudon (48°48′18.32″N 2°13′51.61″E) and a radio astronomy observatory at Nançay

It was also the home to the International Time Bureau until its dissolution in 1987.

The Paris Observatory Library, which was founded in 1785, provides the

researchers with documentation and preserves the ancient books, archives, and heritage collections of the institution.

Many collections are available on the Paris Observatory digital library

Views:

Its foundation lies in the ambitions of Jean-Baptiste Colbert to extend France's maritime power and international trade in the 17th century.

Louis XIV promoted its construction, which was started in 1667 and completed in 1671.

It thus predates by a few years the Royal Greenwich Observatory in England, which was founded in 1675.

The architect of the Paris Observatory was Claude Perrault whose brother, Charles, was secretary to Colbert and superintendent of public works.

Optical instruments were supplied by Giuseppe Campani

The buildings were extended in 1730, 1810, 1834, 1850, and 1951. The last extension incorporates the spectacular Meridian Room designed by Jean Prouvé

The world's first national almanac, the Connaissance des temps, was published by the observatory in 1679, using eclipses in Jupiter's satellites to aid sea-farers in establishing longitude

In 1863, the observatory published the first modern weather maps

In 1882, a 33 cm (13 in) astrographic lens was constructed, an instrument that catalysed what proved to be the over-ambitious international Carte du Ciel project.
In 1875 a 1.2 meter aperture silver-on-glass reflecting telescope was built, for 400,000 francs.
(the french unit of currency at that time)

In November 1913, the Paris Observatory, using the Eiffel Tower as an antenna, exchanged sustained wireless (radio) signals with the United States Naval Observatory to determine the exact difference of longitude between the two institutions.

The Paris Observatory library preserves a great number of original works and letters of the Observatory and well known astronomers.
The entire collection - archives, instruments, iconography - has been inventoried on Alidade.

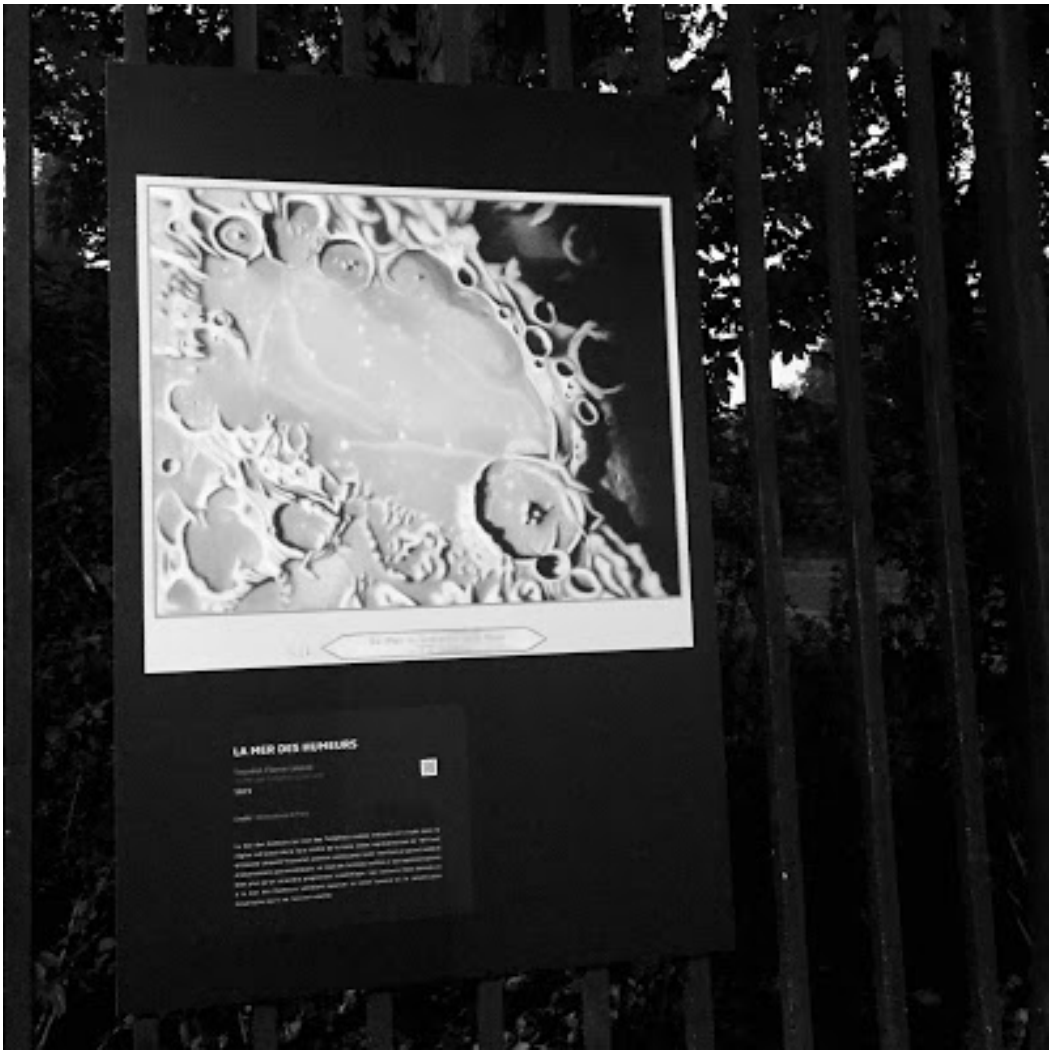
Some of the work is now digitized on the digital library such as Hevelius, Lalande or Delisle letters.

Among other, are to be found.


LES PREMIÈRES PHOTOGRAPHIES


L'ATLAS PHOTOGRAPHIQUE
DE LA LUNE


UNE LUNE COMME PERSONNE
NE L'AVAIT JAMAIS VUE


LA MER DES HUMEURS

Lune(s) wild Exhibition Paris Observatory Gardens.

Current Wild exhibition Boulevard d'Arago with a wink of Felicette ghost

The Meudon great refractor was a 83 cm (33 in) aperture refractor, which with September 20, 1909 observations by E. M. Antoniadi helped disprove the Mars canals theory.

It was a double telescope completed in 1891, with secondary having 62 cm (24 in) aperture lens for photography. It was one of the largest active telescopes in Europe.

The Meudon refractor was built at Meudon Observatory, but in modern times this is one the three sites of the Paris Observatory.

## Meudon Observatory became part of Paris Observatory in 1926.

**The Meudon Great refractor is the third largest astronomical refractor of this type in the world.**

**The Meudon refractor is located in the Grande Coupole building, which was renovated in 2001.**

**List of largest optical refracting telescopes**

**Away from the capital, on a wooded hill, the Château Neuf de Meudon was**

**built in 1705 for the Grand Dauphin (son of Louis XIV)**

**It was burned down in 1871 after the end of the war against the Prussians. Jules Janssen who already had astronomical facilities on the site requested that the ruins of the castle be affected, which was done in 1879.**

**He then began the construction of a large telescope to revolutionize astronomical observations in France.**

**The construction of the Grande Coupole began in 1889 by the Établissements Cail. At the same time, the Grande Lunette began to be assembled under the scaffolding of the dome and became operational in 1893.**

**Trials began under a still dome.**

**In 1896, the Grande Coupole was completed and the Great Bezel was received by the astronomer J. Perrotin Nice Observatory that Janssen has come to perform observations of qualification of the instrument.**

**Since its creation, the Grande Lunette de Meudon is the third largest telescope in the world in terms of diameter (behind those of the Yerkes and Lick observatories and that of the Observatoire de Nice)**

**It is also the 1st in Europe.**

**It consists of two side-by-side objectives:**

**A visual objective of 83 cm in diameter (color correction optimized for yellow, focal length of 16.34 meters) and a photographic lens.**

**It rests on an equatorial mount, replica of that of the telescope of 76 cm of diameter of Nice.**

**The Grande Coupole is a half-sphere with a diameter of 18.30 meters and a mass of about 100 tons. From 1919,**

**Deslandres finds leaks in the dome originally made of steel.**

**Between 1922 and 1924, it was decided to coat the dome with copper plates, less prone to oxidation.**

**From 1956 to 1964, Paul Muller, at the instigation of André Danjon then**

**director of the Observatory of Meudon, completely redeveloped the interior of the dome by giving it a large movable floor that covers its entire surface (at the place of the original mobile platform)**

**The entire archaic electrical system is also reviewed.**

**In 1999, the dome was seriously damaged by the great storm of December when it had stopped turning since 1990.**

**In 2005, it was decided to restore it. Since 2010, the dome has a chocolate color that will give way to the usual green color in about twenty years. In 2011, the observation hatches were replaced with a large crane.**

**When its restoration is completed, the instrument that reigned over a century of astronomy will then be intended for the public and for teaching.**

**Until the end of the works, the Grande Lunette and the Grande Coupole remain inaccessible.**

**In the assets of the instrument, we can point out: the first spectroscopic observations, revelations on the planets and in particular the end of the myth of the Martian canals thanks to Antoniadi, studies on the polarization of the light, studies of novae and studies on double stars.**

**The title of Director of the Observatory was officially given for the first time to César-François Cassini de Thury by a Royal brevet dated November 12, 1771.**

**However, the important role played by his grandfather and father in this institution during its first century actually gives them somewhat the role of director.**

**The Observatoire de Paris is located on three sites: Paris**

**(avenue de l'Observatoire) Meudon and Nançay, was born from the project, in 1667, to create an Astronomical**

**Observatory equipped with good instruments to establish maps for navigation.**

**Complementing the Academy of Sciences founded in 1666, he played a very important role in Western astronomy.**

**It was here that French sciences such as geodesy, cartography and meteorology took off.**

**It is the oldest observatory in the world still in operation.**

**In 1927, the Observatory of Meudon is administratively attached to the Observatoire de Paris.**

**The Paris Observatory has the status of a large institution and placed under the supervision of the Ministry of Higher Education and Research.**

**He is a founding member of the Paris Sciences et Lettres Research University. It is the largest national pole of research in astronomy.**

**The Observatory also provides high level higher education.**

**Under the pressure of many scholars and especially Adrien Auzout who wrote in 1665, a letter to Louis XIV to ask him to create without delay a company of sciences and arts, it is in 1666 that Louis XIV and Jean-Baptiste Colbert founded the Royal Academy of Sciences.**

**At its first meeting, December 22, 1666, it was decided to create the Royal Observatory, which will become the current Observatoire de Paris.**

**It was to serve as a meeting place and experiment for all academicians.**

**But because of its distance from the Paris of the time, only astronomers use it.**

**Meridian room, called Cassini room: on the brass line, nearly 32 meters long, is projected the elliptical image of the Sun produced by a gnomon located at a height of 9.9377 m.**

**On June 21, 1667 (the day of the summer solstice), the mathematicians of the Academy draw on the ground, at the current location of the building, the meridian and the other directions necessary for the exact implantation of the building designed by the architect and physician Claude Perrault (brother of the storyteller Charles Perrault who was also secretary of Colbert)**

**The median plan of the building will henceforth define the meridian of Paris, the clocks settling on the true south.**

**In 1669, Colbert calls Giovanni Domenico Cassini to lead the institution, he made changes to the building.**

**Louis XIV will visit the Observatoire de Paris for the first time in May 1682, 10 years after the end of the work of the Observatory.**

**Designed as a citadel of science, the building is sober with a square tower in front (body facing north) on the side of the main avenue, and side wings in the form of octagonal pavilions.**

**The archives of the institution are available on the digital library of the Observatoire de Paris.**

**The site of Meudon was established in 1876 on the site of the old Castle of Meudon**

**The Paris observatory was run during its first 125 years by the Cassini family:**

**Giovanni Domenico Cassini (Cassini I), from 1669 to 1712 gives it a rapid expansion. During this period, great astronomers like Huygens, Roemer and others attend the Observatory.**

**Jean Picard makes a measurement of the degree of arc of terrestrial meridian.**

**Jacques Cassini (Cassini II) his son, takes over from 1712 to 1756.**

**The observatory is then run by the Academy of Sciences.**

**But in fact, the director has a very great independence..**

**César-François Cassini (Cassini III also called Cassini de Thury), the grandson, directs it from 1756 to 1784.**

**It is during this period that studies are developed in geodesy and mapping**

**Jean-Dominique, Earl of Cassini (Cassini IV), the great-grandson, directs**

**the Observatory from 1784. A year after taking office, he recruits three students: Nicolas-Antoine Nouet, Jean Pemy de Villeneuve and Alexandre Ruelle (to whom the Decree of 31 August 1793 of the Convention will award the status of astronomers, or even professors)**

**Being monarchist, he resigned on September 5, 1793, left the Observatory the following month, and was replaced by a self-taught, Alexis Bouvard.**

**All the Cassini were very present at the Observatory, and even lived there.**

**After the resignation of Count Cassini, the Observatory is somewhat abused by the French Revolution because of its strong ties to the monarchy.**

**A fairly muscular inspection even took place on July 16, 1789, in search of weapons and food, but nothing of the sort will be found on the premises of the Observatory. Money is also lacking.**

**In 1795, the decree of the 7th messidor year III (June 25th, 1795) established the Bureau of Longitudes, and awarded him the Observatory, whose mission is to develop astronomy.**

**Among the ten appointed members, astronomers Jérôme Lalande, Jean-Dominique Cassini, Pierre-François-André Méchain and Jean-Baptiste Joseph Delambre are statutory and receive a salary, and two assistant astronomers are required to work at the Observatory, Michel Lalande (nephew of Jerome) and Alexis Bouvard.**

**Cassini resigns again in early 1796, he will be replaced by Charles Messier.**

**During the following years, the position of director will be successively attributed to: Lalande from 1795 to 1800.**

**It is under his direction that the Observatory contributes to the standardization of measurements, the meter and the kilogram, December 10, 1799)**

**The two measurement standards are kept at the Observatory until 1889, when the International Bureau of Weights and Measures was founded at Sèvres.**

**Pierre-François-André Méchain from 1800 to 1804.**

**Jean-Baptiste Joseph Delambre from 1804 to 1822.**

**However, during this period, the direction of the Observatory goes hand in hand with the Chair (renewed annually) of the Bureau of Longitudes, and concerns only the administrative and non-scientific direction, because the astronomers are autonomous with respect to the chosen course for their work.**

**Alexis Bouvard was thus, as treasurer of the Bureau des longitudes, in charge of the administration of the Observatory from 1808 until his death in 1843.**

**In April 1834, following the adoption of a new regulation of the Bureau des longitudes concerning the service of the Observatoire de Paris, François Arago is appointed Director of Observations, responsible for supervising the regular work of the establishment, entrusted to astronomers.**

**François Arago develops polarimetry and photometry at the Observatory and realizes the first daguerreotype of the Sun.**

**It is installed in the tower is a large equatorial telescope.**

**For this, the architect Alphonse de Gisors enlarges and redevelops, in 1846-1847, the tower with a new dome.**

**But for technical reasons, the telescope can really only be used 25 years later.**

**During this period, Foucault introduces the silver deposit reflector mirror.**

**Urban The Verrier occupies the position of director from 1854 to 1870.**

**He founded meteorology, the meteorological office is then moved to Parc Montsouris.**

**Being very close to the new power and also a member of the Senate, he manages to extend the powers of the Director of the Observatory.**

**It also happens to increase the pay of astronomers.**

**But its authoritarian nature creates significant tensions with the staff of the Observatory.**

**Shortly after the collective resignation of 14 astronomers, he was relieved of his position.**

**Jules Janssen presents a restoration project for the Château de Meudon, obtains the necessary funds (more than one million francs of the time) and founded the Observatory of Physical Astronomy in 1876.**

**A large dome is created which still houses observation instruments.**

**The Meudon Observatory remains one of the reference laboratories for the study of the Sun.**

**Admiral Mouchez from 1878 to 1892, until his death, in turn directs the Observatory.**

**He decided in 1887, the creation of the Map of Heaven, a project involving 18 observatories around the world.**

**He renovates the apparatuses, opens the Observatory to the public and unifies the time in France, at the time of the meridian of Paris.**

**François-Félix Tisserand took over the direction of the Observatory from 1892 to 1896, until his death.**

**While developing his Treatise on celestial mechanics, he follows very closely the various works in progress and ensures the proper functioning of the equipment.**

**It was then Maurice Lœwy's turn to lead the Observatory from 1897 to 1907 until his death.**

**He is actively involved in the development of the Chart of Heaven.**

**Benjamin Baillaud takes the post of director from 1908 to 1926.**

**He is the initiator of the creation of the International Bureau of the hour.**

**He actively participates in the renovation of French astronomical equipment.**

**From 1927 to 1929, it is Henri Deslandres who ensures the direction of the Observatory.**

**Deslandres was the director of the Meudon Observatory.**

**The attachment of this observatory with that of Paris allows him to reach the post of director.**

**Deslandres wanted to transfer all the astronomical equipment from Paris to Meudon, keeping only the administrative in the capital.**

**This project will never be applied.**

**Ernest Esclangon is the director from 1927 to 1944.**

**He will be at the origin of the creation of the first talking clock in the world ..**

**it is presented to the Academy of Sciences in 1932 and inaugurated at the Observatoire de Paris on February 14, 1933**

**To ensure the continuity of the Hourly Service, while France is invaded by Germany, Esclangon and some of the staff leave for Bordeaux.**

**Armand Lambert is acting director of the Observatory.**

**After the armistice of June 22, 1940, the Observatory maintains a more or less normal activity.**

**Being a Jew, Lambert still continues to do his job.**

**He was arrested in 1943 and sent to Auschwitz, where he will not return.**

**At the end of the Second World War, the position of director was assigned to André Danjon, who will continue until 1963.**

**Before becoming a director, Danjon already has a very strong reputation.**

**It is thanks to this that it extends enormously the means of the Observatory, especially in personnel.**

**He is also actively involved in the development of equipment such as the electronic camera proposed by André Lallemand.**

**Because of the increase in the number of scientists in the Observatory, he will have several other buildings built and limit the height and lighting of the buildings around the Observatory, so as to maintain a certain quality of view.**

**In 1953, the observatory of Nançay is attached to the Observatoire de Paris.**

**This attachment allows to make many discoveries on the solar corona and Jupiter.**

**The Observatory has nearly 600 permanent jobs.**

**333 permanent permanent jobs under the Ministry of Research and Higher Education**

**(including 89 astronomers, 10 teacher-researchers, 2 PRAGs, 232 support staff)**

**248 CNRS holders are assigned to it 35 teacher-researchers from other institutions of higher education.**

**9 different staff work in the laboratories of the establishment.**

**The establishment employs 42 contractors including 11 on vacant positions, 19 on CNRS contract, the rest on budget of the establishment.**

**An institution of higher education, 245 students study there**

**(this figure includes students following the courses of the Observatory but enrolled in partner universities)**

**The Paris Observatory must fulfill 3 missions:**

**a research mission**
**a teaching mission**

**a mission to disseminate knowledge to the general public**

**The Observatoire de Paris is the largest French research center in astronomy.**

**The research conducted within it covers all fields of contemporary astronomy and astrophysics, studying:**

**The Sun and its relationship with the Earth**

**Planets and planetary systems**

**Star formation**

**The interstellar medium**

**Formation and evolution of galaxies**

**The astroparticles**

**Cosmology**

**The metrology of space and time**

**History and philosophy of science**

**The Observatory's researchers and engineers produce observation**

**Instruments for ground-based telescopes or space probes, organize**

**Observation campaigns, set up the processing and analysis of observational data, develop baselines for data, or perform numerical simulations to model and interpret astrophysical phenomena.**

**They are grouped within 7 research units:**

- **The GEPI (Galaxies, stars, physics and instrumentation)**
- **The IMCCE (Institute of celestial mechanics and calculating ephemerides)**
- **LERMA (Laboratory for Radiation and Matter Studies in Astrophysics)**
- **LESIA (Laboratory of Space Studies and Instrumentation in Astrophysics)**
- **The LUTH (Laboratory Universe and Theories)**
- **SYRTE (Time Space Reference Systems)**
- **The USN (scientific unit of the Nançay station)**
- **The Paris Observatory is in secondary supervision of 3 associated laboratories:**

- **OSUC (Universe Science Observatory in the Center Region)**
- **AstroParticles and Cosmology Laboratory (APC)**

- **Laboratory of Plasma Physics (LPP)**

**The Observatoire de Paris has a Communication Department whose mission is to disseminate knowledge to the general public.**

**For this purpose, different media and events are used.**

**Traveling Exhibitions**

**Visits to the 3 Observatory sites and their instruments**

**Solar System Course at the Meudon site**

**(representation at the solar system scale)**

**Class Sponsorships**

**Open days**

**Nightly observations for the general public once a year**

**One-off events according to current events**

(World Year of Astronomy in 2009, Year Le Verrier in 2011)

The Observatoire de Paris has a park of several historical instruments.

Located on the sites of Paris, Meudon and Nançay, the oldest instruments are rarely used for scientific purposes

(except for Meudon's solar instruments) and are primarily used for scientific mediation and training of master's students.

The instruments from which the data analyzed by the researchers are derived are located in places where there is less light pollution and where the atmosphere is more stable: observatory of the Pic du Midi, observatory of Haute-Provence, VLT in Chile, Hawaii, Islands Canary ...

All the instruments, including historical ones, are listed on the Alidade database

(Online Access to Instruments, Documents and Archives of Astronomy) by the library.

The telescope 1 m in diameter and its dome emerged in front of the Great Dome of Meudon in 1891.

It observes in the visible range. Initially, this telescope was in configuration called "Newton" and was very bright thanks to its short focal length(10 foot)

Around 1969, however, it was transformed into a Cassegrain configuration and therefore with a much larger focal length (22 meters)

This is the configuration that is currently used.

Although it was originally intended for the study of deep sky objects, its new configuration was primarily intended for the study of planets.

It is supported by an equatorial mount in cradle (and therefore can not point North)

Its 1 meter diameter primary mirror weighs about 250 kg and all the moving parts of the telescope weigh about 5 tons.

**If the mount is motorized to compensate for the rotational movement of the Earth, it is not automatic: the pointing of the telescope is done entirely "by hand", that is to say either by aiming a luminous target at the eye, either by pointing at the coordinates using the graduated axes.**

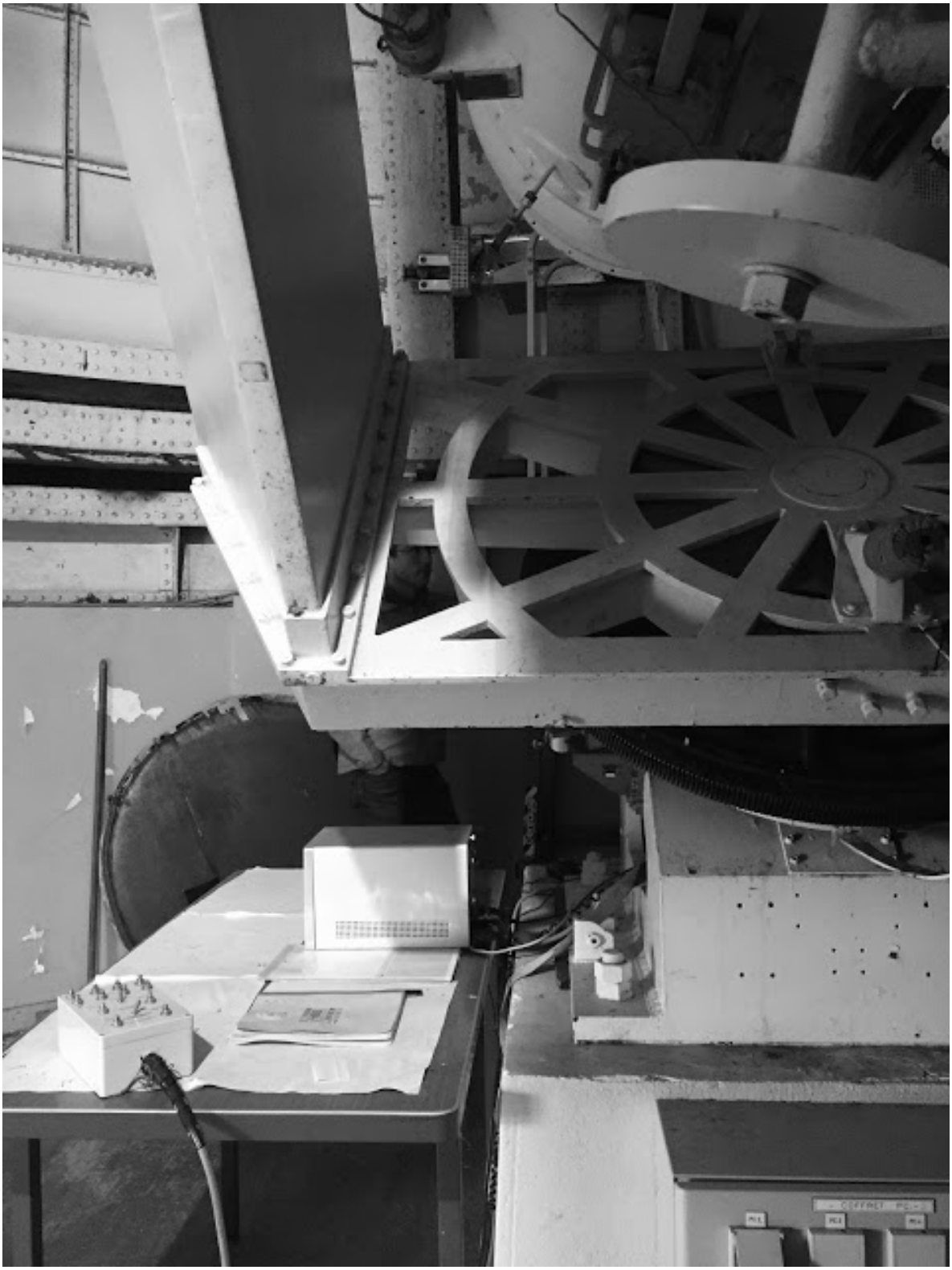
**The telescope is surmounted by a telescope 30 cm in diameter for about 9 meters focal length. It is not used anymore.**

**Nowadays, the light pollution due to the Parisian agglomeration makes the scientific astronomical observations in Meudon difficult.**

**However, this telescope is still sometimes used by IMCCE and LESIA to observe occultations of stars by asteroids or Pluto.**

**The main user of the 1-m telescope remains, however, the Observatory's Training-Teaching Unit, whose Masters include some of the practical exercises that are carried out partly with this telescope.**

**It is possible to see this telescope during visits to the Observatory and observe with annual public observation days.**



**The dome of the Equatorial Table is the most recent of the 4 domes of the Observatory of Meudon. The installation, whose work began in 1927, went into service in 1932.**

**The Table is a large circular plate 2.3 meters in diameter that can support several astronomical instruments. It is supported by a large pillar oriented**

**parallel to the axis of earth rotation and whose foundations go down to 6 meters deep to ensure stability.**

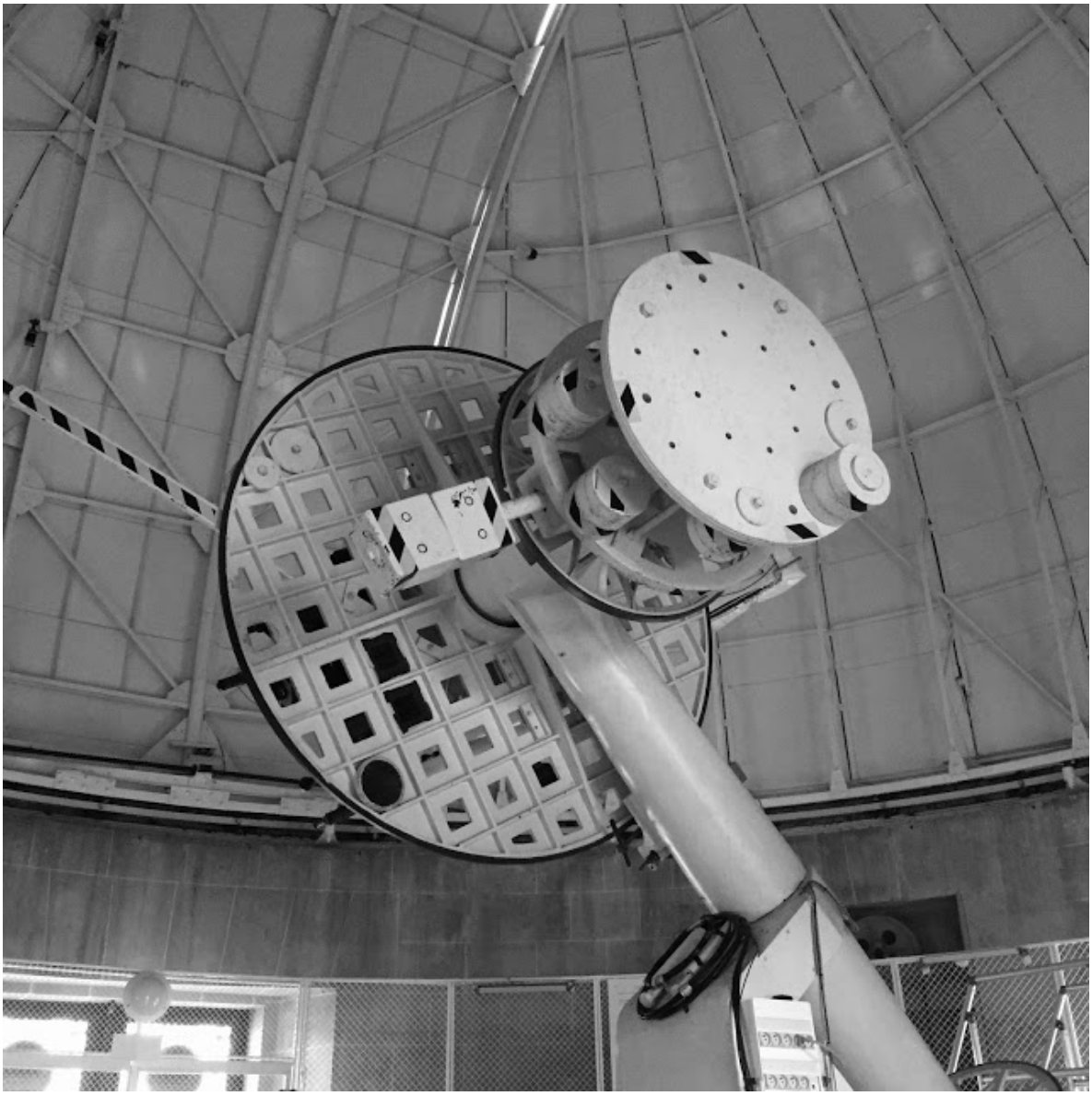
**The cupola is 11 meters in diameter, and it covers an elegant building of layers alternately cream and pink stones.**

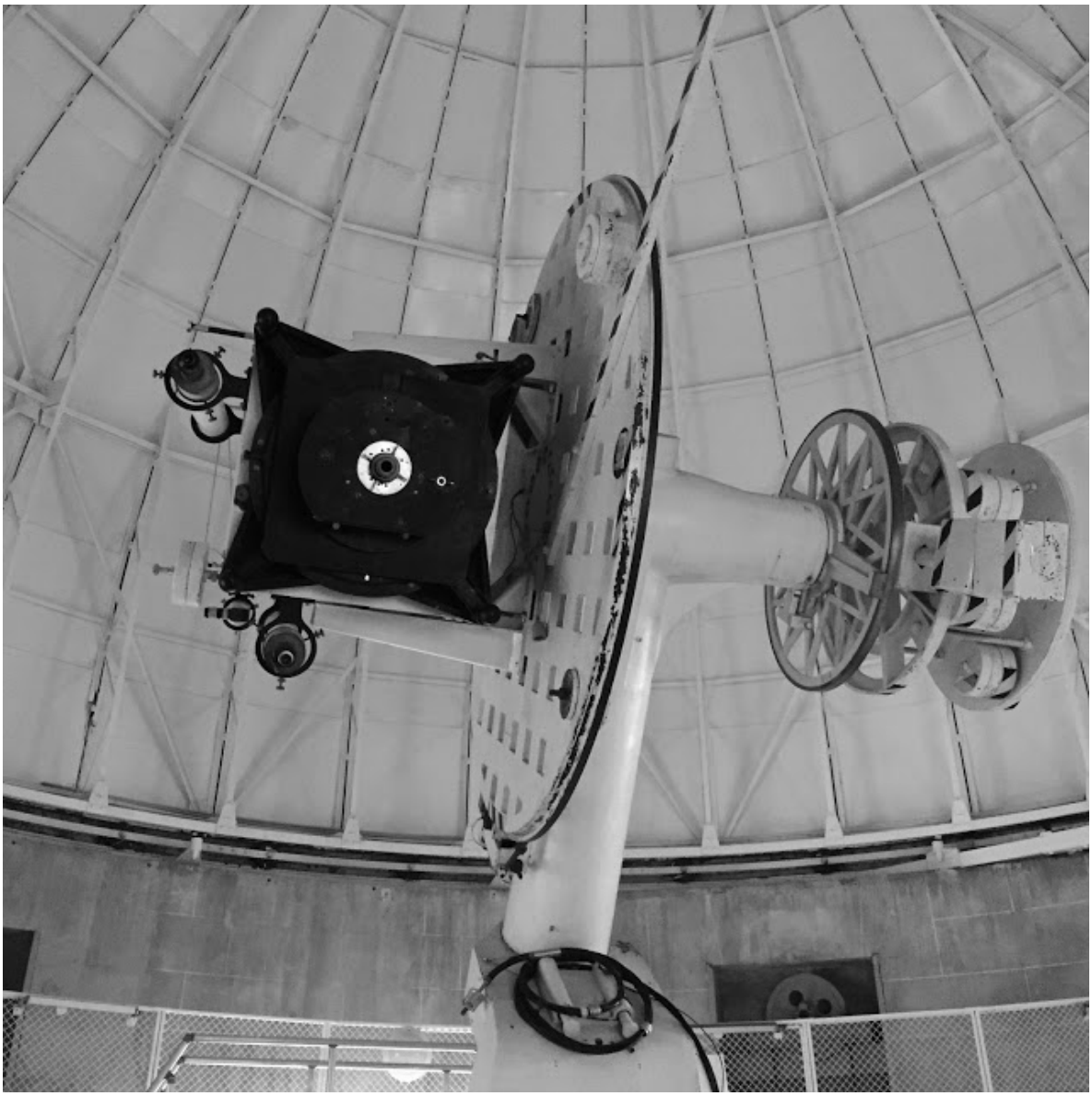
**Access to the dome is through two large bronze doors decorated with comet motifs.**

check it out


L'INSTRU-
MENTATION
SPATIALE


DES
MILLIARDS
DE GALAXIES
DES
ÉTOILES
PLURIELLES





**The dome is equipped with a movable floor that covers its entire surface, supported by 4 worm driven by an electric motor.**

**This floor with a vertical range of motion of a little over a meter allows to have the eye permanently within range of the eyepiece of an instrument placed on the Table.**

**During his career, the Equatorial Table of Meudon has been equipped with many instruments. In 1932, it supports a telescope guide 20 cm in diameter, two rooms with objective and a prismatic chamber, all for essentially the study of comets. We can also mention Lyot's 20 cm coronograph, temporarily installed on the table before its transfer to the Pic du Midi Observatory.**

**In 1960, the study of comets gave way to that of supernovae and the Equatorial Table was stripped of its instruments replaced by a Schmidt telescope 62 cm in diameter for 1 meter focal length and by a Cassegrain telescope of 4 meters focal length for a diameter of 25 cm.**

**If the mount is motorized to compensate for the rotational movement of the Earth, it is not automatic: the pointing of the telescope is done entirely "by hand", that is to say either by aiming a luminous target at the eye, either by pointing at the coordinates using the graduated axes.**

**Today, the Equatorial Table is equipped with a Cassegrain telescope 60 cm in diameter and 9 m focal length.**
**This facility is mainly used by the Observatoire's training-teaching unit, whose Masters include some of the practical exercises that take place in this telescope.**

**It is possible to see this telescope during visits to the Observatory and observe with annual public observation days.**

**The building of the Great siderostat houses a spectroheliograph for the spectroscopic imaging of the Sun.**

**Commissioned in 1909 under the leadership of Henri Deslandres, director of the site, it delivers, as soon as weather permits, monochromatic images of our star in three wavelengths: the H alpha line of hydrogen, and the K3 and K1v lines of calcium.**

**Since its creation, it has studied 9 solar cycles and was completely renovated in 1989.**

**The instrument is fixed inside the building, the sunlight reaches the spectroheliograph through a coelostat with 2 mirrors located in the south hut.**

**The 2 movable planar mirrors return the sun's beam into the building through a 25 cm slot. Its name comes from the presence in the north cabin of a Foucault siderostat 1 m in diameter, one of the largest realized.**

**This system has the same vocation as the coelostat, but has only a single mirror and therefore a more complex mechanics.**

**Currently not used, the siderostat returns the light in a small room, between the north cabin and the spectroheliograph, which can accommodate an instrument.**

**A small hut on the roof of the building protects the Meudon heliograph.**

**It is actually a sunglass with several apochromatic glasses of 80 mm and 100 mm.**

**These lenses take an image of the disk in different wavelengths at intervals of 20 seconds. Combined each evening, we obtain a film allowing the dynamic study of eruptions and solar filaments.**


6 RECHERCHES SPATIALES

**The twin dome of the telescope 1 m in diameter currently houses a telescope 32 cm in diameter that operates in the infrared range. Instead of an eyepiece, an infrared detector cooled using a cryostat fed with liquid nitrogen is used.**

**This makes it possible to observe in particular the clouds of gas and dust**

**that abound in the galaxy.**

**This telescope was previously loaded on a Caravelle aircraft to make observations in infra-red at altitude and to overcome the thickness of the atmosphere and its broad absorption bands in this wavelength range.**

**The telescope is mounted on a cradle mount similar to that of the 1 m telescope.**

**As for the latter, the mount is motorized to compensate for the rotational movement of the Earth but it is not automatic:**
**the pointing of the telescope is done entirely "by hand" that is to say either by aiming at a Target is illuminated by a conventional Celestron C8 telescope, ie by pointing to coordinates using the graduated axes.**

**This telescope is used exclusively by the Observatoire's training-teaching unit, whose masters have TPs that are partly carried out with this telescope.**

**This telescope can not be visited.**

**The solar tower of Meudon is a specialized telescope consisting of a concrete tower with a height of 36.47 meters on the Meudon site of the Observatoire de Paris.**

**It is equipped with a spectrograph to examine the Sun.**

**The solar tower of Meudon was built between 1964 and 1967.**

**A prototype telescope type Schwarzschild-Couder 4 meters in diameter, never built before, is being developed on the site of Meudon.**

**Its purpose is to observe the Cherenkov radiation emitted by the high energy particles entering the Earth's atmosphere.**

**SST-GATE is a technological demonstrator that prefigures the realization of the CTA observatory, an international project aiming at the construction of two Cherenkov observatories**

**(one in each hemisphere) totaling a hundred telescopes like SST-GATE.**

**It is part of the project of a platform of astronomy equipment Cherenkov in Île-de-France.**

## Amazing stereo-pictures will be available. (in progress)

More

## More Photographs + text

October 19

October 20

October 23

October 24

September 23

**Submission of my application in partial times**
**in progress - informations to come**

**50th Anniversary of the Moon Landing.**

**IAU Women and Girls in Astronomy Day.**

**Activities to celebrate girls and women in astronomy by encouraging girls to consider a career in astronomy and celebrating women astronomers.**

**To follow as you know things change to becomes more precises or completely differents:**

**https://www.patreon.com/posts/humanitys-do-you-30927293**

**Update**

**December 11 Update:**

**Following works with Wikipedia, first  writings are online on some wiki spaces.**

**My first participation as a member of wikicommons as Wikidata property for astronomical objects.**

**The research about Human rights and scientific education are laborious.**
**Update  So you can find my owns**

**February 12  2020 Update:**

**(Another linked post is in patreon just above the following one)**

**From Medicine to Wi-Fi**

**You can access to the original post of my blog by clicking on the time, below.**

**(Photographs presentation in a dark site)**

Posted by Veronica IN DREAM at 10:48 PM