The Commissariat à l'Énergie Atomique (CEA) is situated in Saclay, very close to Paris, France. CEA is the central French nuclear physics laboratory. Activities in astrophysics at the centre began in the 1960s. At that time, the CEA wanted to develop nuclear instruments (both civil and military) and had already acquired wide experience in instrumentation for detecting X-rays and γ-radiation. At the same time, space studies were starting to develop with the foundation of the French space agency CNES in 1961. Since X- and γ-rays from space are absorbed by the atmosphere, it was natural to combine the expertise of the CEA and CNES to develop high-energy astrophysics. Thus, CEA's Service d'Astrophysique (SAp) became one of the first French space laboratories dedicated to astronomy. Subsequently, in partnership with CNES, it participated in most of the major astronomy projects investigating cosmic radiation (*HEAO*, Ulysse), γ-rays (
COS-B
,
Sigma
,
Integral
, Fermi), and X-rays (
XMM-Newton
).

Since the 1980s, the CEA diversified and developed in a high technology center. Astrophysics is a driver of technological developments ripe for industrial use because the instruments used in astrophysics require exceptionally high performance, if they are to observe the faintest objects in the Universe. Astrophysics has also become a multi-wavelength science. SAp kept up with the evolution in astrophysics and the CEA, by diversifying towards a new sphere of excellence: the detection of thermal infrared radiation. SAp consequently took charge of the development of the Isocam camera on board ESA's *ISO* satellite, and participated in the Cirs instrument for the Cassini mission (launch 1997, insertion into orbit around Saturn 30 June 2004) and the production of bolometer arrays as part of the Pacs instrument for the Herschel mission.
SAp is principally working in the following areas:

- the birth of stars and planets (molecular cloud fragmentation, early stages in the formation of stars, circumstellar disks, Saturn's rings, etc.),
- the life of stars (magneto-hydrodynamic phenomena of stellar plasmas, activity of young stars, the Sun, massive stars and presupernovae, etc.);
- the final stages in the life of stars (formation of black holes, X-ray binaries, microquasars, supernova explosions, supernova remnants, gamma-ray bursts, etc.);
- the structure of the Universe (history of the formation and evolution of stars, galaxies and their active nuclei, galaxy clusters, the large scale structure of the Universe, etc.).

This research is conducted using multi-wavelength observations, inparticular using instruments

in which the laboratory has participated, computer simulations, and theoretical studies. The service currently finds itself in an exceptional position, with five experiments in space, *SoHO*, Cassini,
XMM-Newton
,
INTEGRAL
, and Fermi (recently launched in June 2008), as well as three ground-based experiments, Megacam,
HESS
and
VISIR
. In the future, two missions in the high energy domain are in preparation:
SIMBOL-X
and Svom.