

## DRONE FLIGHTS OVER FRENCH NUCLEAR CENTERS: FOUR HYPOTHESES

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During the past month and a half, drones have flown over French nuclear centers numerous times, and authorities have been incapable of determining who is responsible for piloting these machines. At present, **four hypotheses** seem possible to explain these mysterious intrusions into prohibited air space:

- **The “playful” action of enthusiasts**
- **The action of radical environmentalists**
- **The action of a terrorist group**
- **The action of a criminal group to blackmail or deride the state**

### 1) The Facts

Although the figures differ, based on those provided by the government versus those given by environmental organizations, it seems that 14 centers (out of the 19 that make up the French nuclear grid) and one other site linked to nuclear energy have been flown over at least once, with certain sites having been targeted multiple times.

- The case dates back to **September 14**, with the **Atomic Energy Commission (CEA)** in **Saclay** (in the department of Essonne) being flown over. The installation in Saclay is one of ten research centers of the CEA and represents the general direction of the institution, housing a state-of-the-art center where four departments manage extremely high-performing laboratories. On October 30, in a brief statement, the CEA management confirmed that *“certain installations have been flown over occasionally by drones. These flights have been the object of several complaints”*. **The structure employed in this statement suggests that the drone flight on September 14 is not the only occurrence for the CEA.**
- Three weeks later, on **October 5**, the nuclear site **“Superphénix”** in **Creys-Malville** (in the department of Isère) was flown over.
- On **October 13**, there was a flight over the site in **Blayais** (in the department of Gironde).

- On **October 14**, the nuclear power station in **Cattenom** (in the department of Moselle) was flown over.
- On **October 19**, **four stations** were flown over: **Gravelines** (in the department of Nord), **Bugey** (in the department of Ain), **Chooz** (in the department of Ardennes), and **Nogent Sur Seine** (in the department of Aube)
- On **October 20**, there was another flight over the station in **Bugey**
- On **October 27**, the station in **Pierrelatte** (in the department of Drôme) was flown over
- On **October 30**, there was a flight over the nuclear station in **Golfech** (in the department of Tarn-et-Garonne)
- On **October 31**, there were flights over the stations in **Dampierre-en-Burly** (in the department of the Loiret), **Flamanville** (in the department of the Manche), **Saint-Laurent-des-Eaux** (in the department of Loir-et-Cher) and **Fessenheim** (in the department of the Haut Rhin). A sixth installation (**Belleville-sur-Loire**, in the department of Cher) was approached by a drone, but not flown over.
- On **November 2**, **Dampierre-en-Burly** was flown over another time.

All of the drones used seem to be civilian (and therefore easy to procure on the free market), but according to the available witnesses, they are **different types**, their size varying from several dozen centimeters to a wingspan of almost two meters. All of the flights occurred at dusk, between 7 o'clock and midnight, with about half taking place during the weekend and the others occurring on Mondays, Tuesdays, Thursdays, or Fridays.

It is important to note that the law forbids flying within 5 kilometers of a nuclear power station at an altitude of less than 1,000 meters. **An infraction is punishable by up to one year in prison and a fine of 75,000 Euros.**

## 2) Who is a suspect?

No arrests have been made so far and, last weekend, the Ecology Minister Mrs. Ségolène Royal declared that **the government “did not have any leads”**.

Suspicious were immediately placed on **Greenpeace**, which has already carried out similar operations to demonstrate the lack of security at these nuclear stations. However, **the person in charge of antinuclear campaigns at Greenpeace has decisively denied that their organization is linked to the case.**

## 3) What are the risks?

Even if the government works on minimizing the involved risks, they are very real. While the crash of a small drone on a nuclear power station would not have an effect,

**the use of an explosive charge could cause significant damage.** Moreover, **in the event of an attack against a “nuclear station”, the media fallout and the public emotion would certainly be disproportional to the actual consequences of the incident itself.**

From a purely technical viewpoint, the 58 reactors present in the 19 French stations are housed by armed concrete structures that can resist the fall of a device of up to 5.7 tons, but **that is not always the case for often vital annex installations, such as pools storing spent fuel**, that are often located in “light” buildings.

It is notable that certain “industrial” drones, like the *S1000+ by DJI Innovation*, have **a capacity to carry roughly 6 kilograms**, which permit them to cause significant damages to buildings that do not house the nuclear reactors, **provided that they could procure military grade explosives.** This type of machine costs several thousand Euros and can be acquired by mail order. If significantly more money is spent (between 40,000 and 100,000 Euros), it is possible to procure a drone that could carry an explosive charge of several dozen kilograms.

#### **4) The Possible Hypotheses**

It is first necessary to consider the motives of the perpetrators:

- The **“scouting” of locations (with the intention of future ulterior action) can not be accepted:** the targeted stations can all be seen on Google Earth.
- Consequently, the remaining goals are that of **publicity** or the **“test” of the station’s security systems** (speed and precision of the reaction of the special police teams who protect each station, type of reaction, etc.).

Subsequently, **four hypotheses** exist:

- First hypothesis: The playful action (or an eventual bet) by **model aircraft making fanatics.** Even if one can not totally reject this possibility, it is the least probable. It is certainly possible that either of the actions referred to above has been performed by an individual who has been encouraged to continue by the media uproar created by the situation. But the risks (see below) are certainly too important for many amateurs or fans to play along.

**Besides, on October 19 and 31, respectively 4 and 5 nuclear power stations were flown over almost simultaneously hundreds of kilometers apart. This implies the existence of an organization, or at the very least a level of coordination, that is hardly compatible with this theory.**

- **The action of radical environmentalists:** despite the refutations of *Greenpeace*, this organization or an even more radical group could be tempted to demonstrate the *“weakness”* of the security around these nuclear stations. **The repetition of these events and the simultaneous character of certain flights indeed amplify the demonstration.**

- **A assessment in order to carry out a terrorist attack:** at this stage, an unlikely hypothesis. At least **a half a dozen persons** have been implicated in this plot (given the six nuclear power stations that were targeted on October 31) and **these people had to have coordinated their movements and maintained contact**. Even if that was possible, it is **hardly conceivable, in the current context of the maximum terrorism alert, that an organization could completely escape detection**. Furthermore, this risky procedure (of having a long period of “tests” which present numerous risks to be rendered incapable of causing harm) **does not resemble at all the usual method of terrorist groups** that usually strike rapidly and without warning.
  
- **A criminal act:** this hypothesis must be seriously considered. These flights could be viewed as **a preliminary phase of blackmail**. To recall, in 2003, a mysterious group called **AZF** blackmailed the French government by threatening to bomb the country’s railway system. Two of these bombs (not connected to a detonator and therefore “inert”) were set up in order to give more weight to their threat. After several months of secret “negotiations” (carried out by AZF by letters and by phone calls from public phone booths), two attempts at delivering the ransom (a total of 5 million Euros) failed. **The case was never solved and no arrests were made**. To this day, the authorities do not know if the AZF case was a true criminal act or whether it was an attempt to deride the state...

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