

LAST FRENCH EXPERIMENTS

WITH LASERS TO FRIGHTEN THE BIRDS

By J.L. BRIOT
DGAC - STNA

246 rue Lecourbe
75015 PARIS

Summary of the video presented

Some experiments with four different types of lasers are firstly presented :

- Continuous laser guns (helium neon; $P = 5$ to 10 mW)
- Impuls laser ($\lambda = 530$ nm, $P = 150 \mu\text{J}/\text{cm}^2$)
- Thermic laser : CO_2 ($P = 1 \text{ W}/\text{cm}^2$)
- Diode pumped Nd : Yag lasers ($\lambda = 532$ nm, $P = 200$ to 400 mW)

The most important results are :

1) To scare away the bird, it is not usefull to aim the eye or to dazzle it. The color don't seem important (blue, green, red). The birds take off when they see the laser beam pointing toward them like a long stick.

2) Working below the ocular security ($25 \text{ W}/\text{m}^2$) with continuous lasers and appropriate optical equipments in order to get $10 \text{ W}/\text{m}^2$ at 1000 m, most of the birds species take off when the sunlight is below $13\,000$ lux. (a sunny day is around $30\,000$ lux). Over this limit there is no contrast and the birds cannot see the laser beam.

3) an experiment on a rookery show that there in no habituation when the laser beam is in movement.

A prototype of equipment is to day realized and will be fixed along a runway to evaluate the possible disturbances on the pilotes (reflections problems, test in IMC conditions etc...). The correlations with the meteorological conditions and the results on other kinds of birds will be also studied.

Technical information can be obtained to :

Cilas Cie,
Route de Nozay
91460 Marcousis
tel:33(1) 64 54 49 57 France, fax: 33(1) 64 49 70 91
(Mr J.P. GEX)