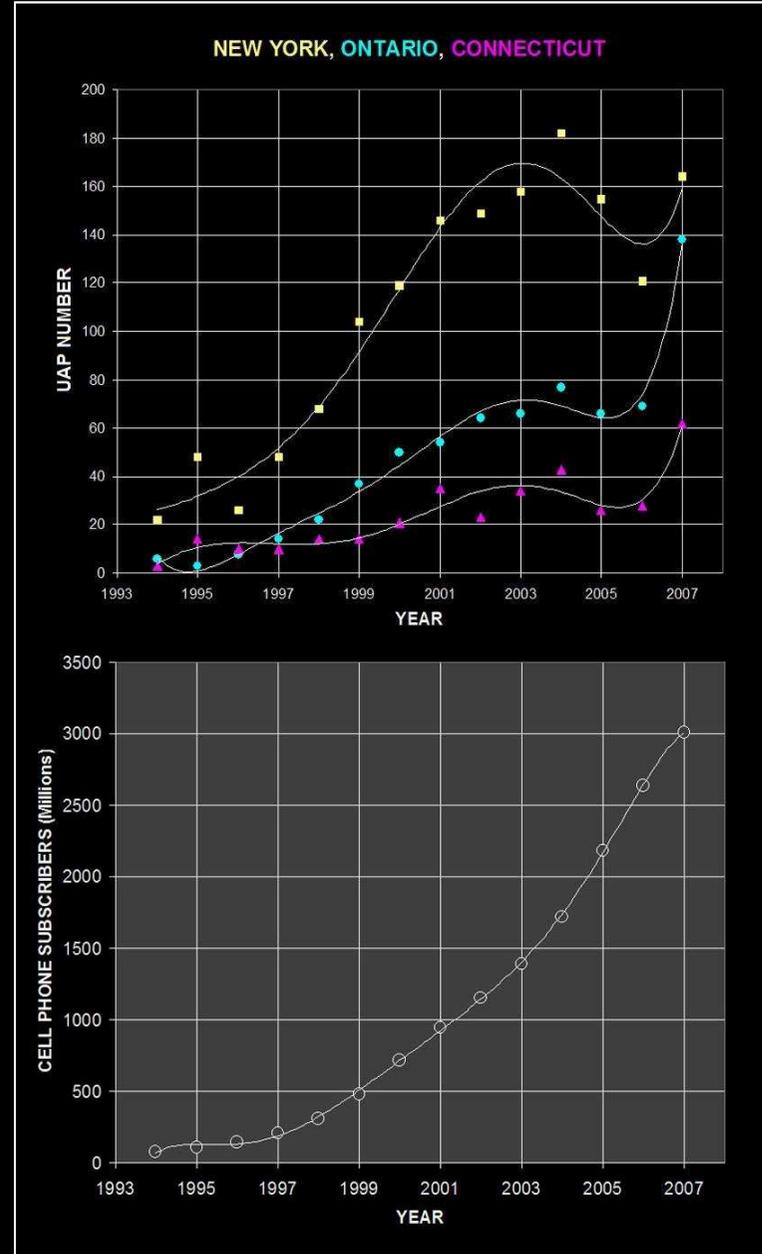
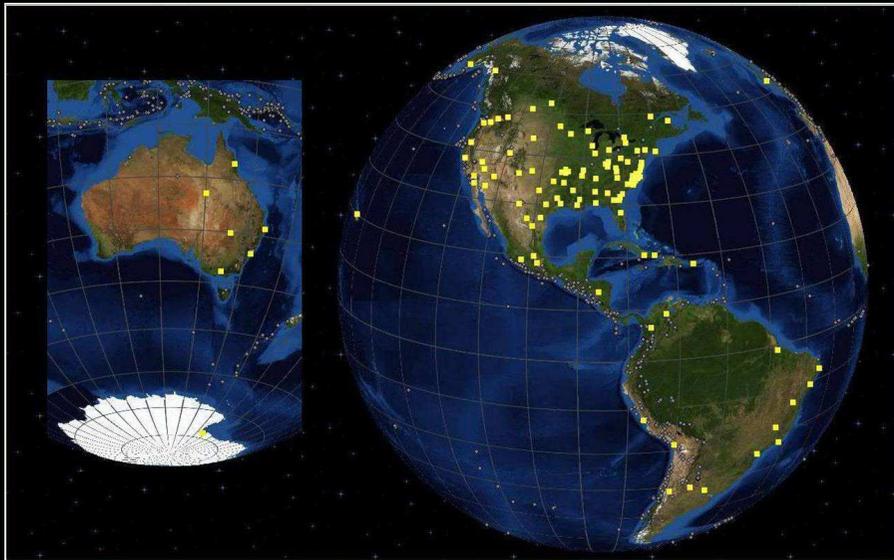


# INSTRUMENTED MONITORING OF AERIAL ANOMALIES

Dr. Massimo Teodorani, Ph.D.  
Astrophysicist

*Workshop CAIPAN – CNES-GEIPAN, Paris, 8-9 July 2014*

# Statistics



## A Comparative Analytical and Observational Study of North American Databases on Unidentified Aerial Phenomena

MASSIMO TEODORANI, Ph.D.

Astrophysicist, Researcher, Science Writer

NARCAP Research Associate

Copyright  
November 2009

*ABSTRACT. Databases concerning UAP sightings are analyzed in depth through the examination of three specific samples describing anomalous events reported in the last 60 years in the confining US states of New York and Connecticut and the Canadian province of Ontario. Temporal, spatial and typological analysis of these data show that UAP databases, though not explaining the intrinsic nature of the reported phenomenon, are able to demonstrate its existence whatever its nature may be, and to show quite clearly the way in which the witness perceives it in the same way at different locations both in terms of time intervals and in terms of the sighted shapes. Long-term temporal analysis demonstrates that the time-frequency of reported sightings is directly correlated with the evolution of communications technology and anti-correlated with the secular decrease of Earth's magnetic field, but also that throughout the general trend some really anomalous residual does emerge in the form of transient "flaps" that are intrinsic to the UAP phenomenon. A work hypothesis is discussed concerning an additional reason why mankind of the technological age tends to report a much higher number of UAP sightings than in the ancient past. Spatial analysis, excluding any connection of the location of their occurrence with magnetic and gravimetric anomalies, shows that the geographical frequency of UAP sightings is strictly correlated with the population number but also that, once a statistical pondered evaluation is done, a real spatial recurrence does exist and is circumscribed to specific areas. Astrometric analysis shows that UAP sightings tend to be reported more frequently when moonlight is low and very often when planetary conjunctions are visible. An explorative and instrumented mission to some locations of Ontario is described, where the testimony of a suspect sighting and the registration of apparently anomalous VLF and ELF data are presented and discussed in detail. Scientific methodology concerning the instrumental monitoring and measurements on the field is discussed throughout the text.*

# A Scientific Approach to the Investigation On Anomalous Atmospheric Light Phenomena

MASSIMO TEODORANI, Ph.D.

Astrophysicist / NARCAP Research Associate

**ABSTRACT.** Anomalous atmospheric light phenomena tend to occur recurrently in several places of our planet. Statistical studies show that a phenomenon's real recurrence area can be identified only after pondering reported cases on the population number and on the diffusion of communication media. The main scientific results that have been obtained so far after explorative instrumented missions have been carried out are presented, including the empirical models that have been set up in order to describe the observed reality. Subsequently, a focused theorization is discussed in order to attack the physical problem concerning the structure and the dynamics of "light balls" and the enigma related to the central force that maintains them in spherical shape. Finally, several important issues are discussed regarding methodology, strategy, tactics and interdisciplinary approaches.

**Keywords:** *anomaly, astrophysics, energy, electromagnetism, geophysics, Hessdalen phenomenon, instrumentation, plasma physics, physical theory, photonics, statistics, research strategy.*

## A Long-Term Scientific Survey of the Hessdalen Phenomenon

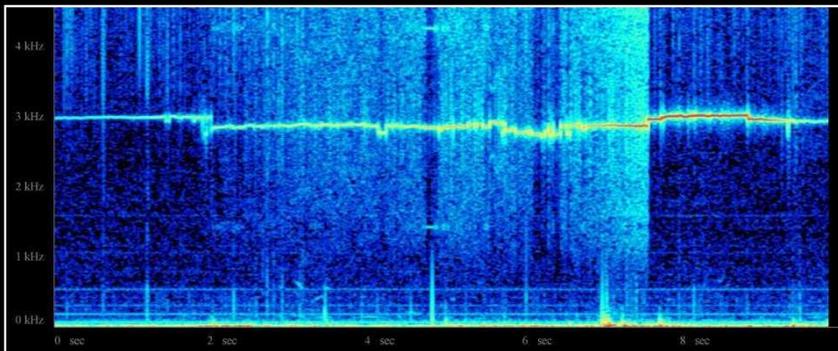
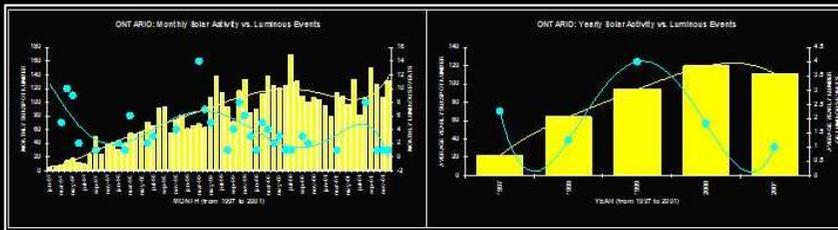
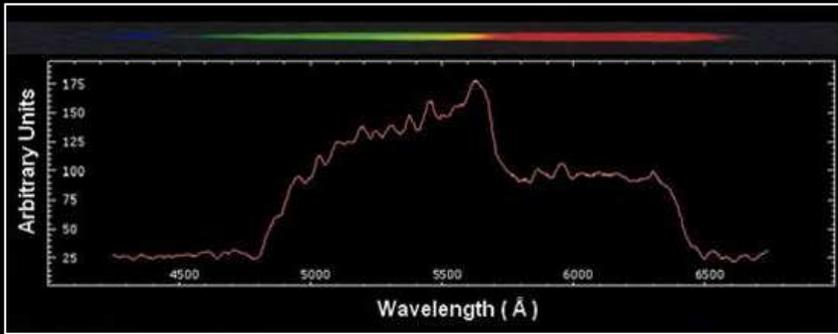
MASSIMO TEODORANI

*CNR—Istituto di Radioastronomia / Radiotelescopi di Medicina  
Via Fiorentina—40060 Villafontana (BO)—ITALY  
e-mail : mteodorani@ira.cnr.it*

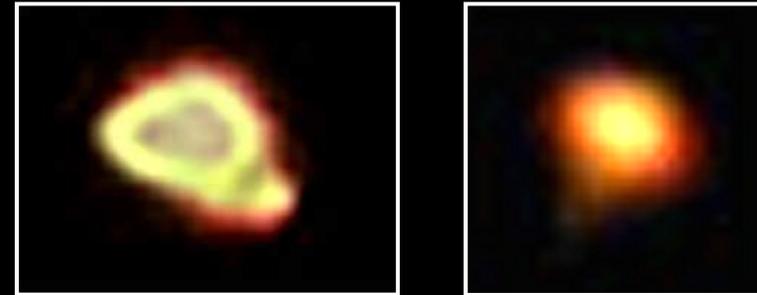
**Abstract**—The balls of light which appear in the Hessdalen valley in Norway are exemplary of anomalous atmospheric luminous phenomena that occur frequently at some locations on Earth. The recurrence of the phenomenon and the existence of an instrumented observation station makes this area an ideal research site. The apparent correlation of luminous phenomena with magnetic perturbations, radio emission, and radar tracks, found by Norwegian researchers, led some Italian physicists and engineers of the EMBLA Project to reanalyze the Norwegian data. The second step was three explorative, instrumented, field-study expeditions. The behavior of the phenomenon was monitored with optical, radio, and radar techniques. The global picture of the phenomenon obtained so far shows that the phenomenon's radiant power varies, reaching values up to 19 kW. These changes are caused by sudden surface variations of the illuminated area owing to the appearance of clusters of light balls that behave in a thermally self-regulated way. Apparent characteristics consistent with a solid are strongly suspected from the study of distributions of radiant power. Other anomalous characteristics include the capability to eject smaller light balls, some unidentified frequency shift in the VLF range, and possible deposition of metallic particles. A self-consistent definitive theory of the phenomenon's nature and origin in all its aspects cannot be constructed yet quantitatively, but some of the observations can be explained by an electrochemical model for the ball-lightning phenomenon. The importance is stressed of using more sophisticated instrumentation in the future.

*Keywords:* atmospheric anomaly—Hessdalen lights—plasma physics—ball lightning—astrophysical techniques—theory

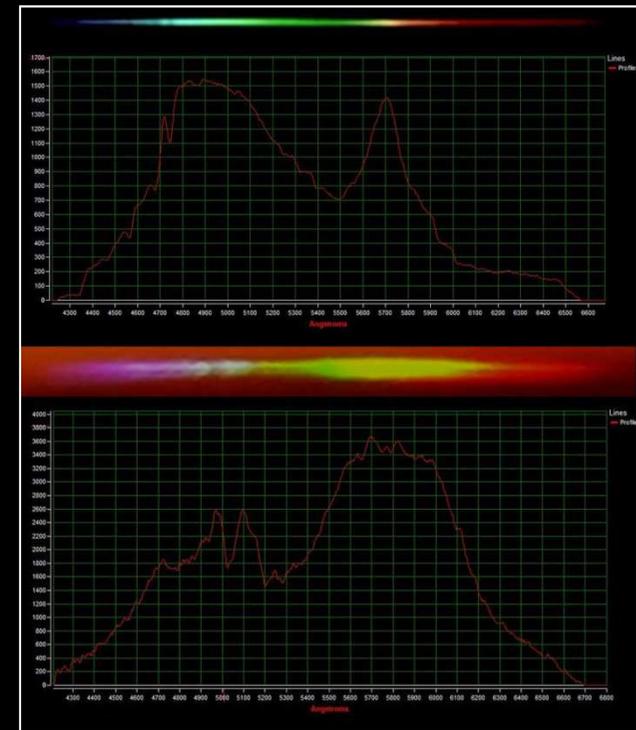
## Monitoring UAP – Ontario Lake (Canada)



## Monitoring UAP – Arizona Desert (USA)



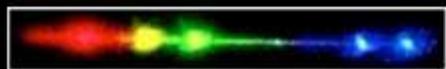
## Monitoring UAP – Avalon Beach (Australia)



# The importance of a correct Spectroscopy

$$R.P. \propto lm \cdot F \cdot L_0 \cdot E$$

A

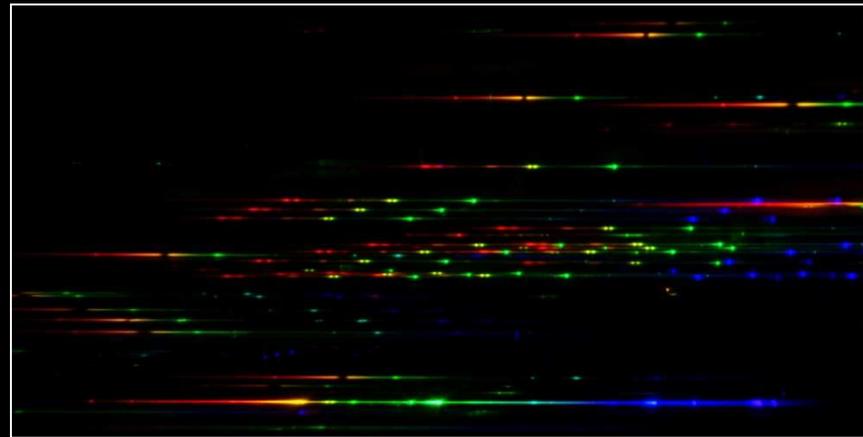


Comparison between low and higher resolution

B



# Optimizing Spectroscopy



HALOGEN Light

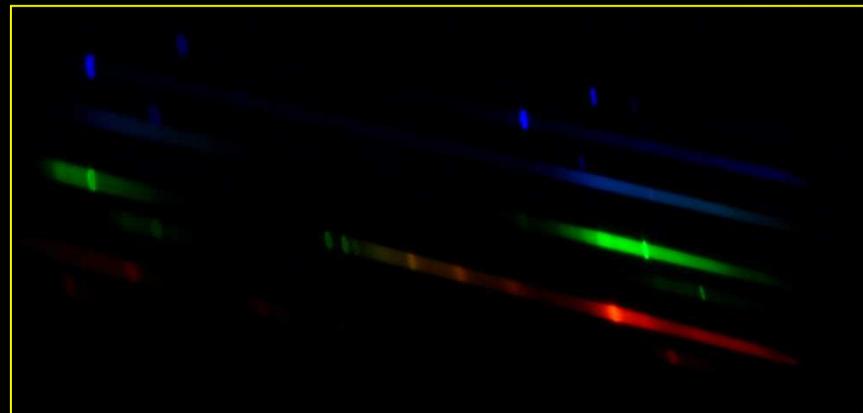


MERCURY Light



SODIUM Light

Obtained using Dr. Ron Masters' Non-Echelle Spectrograph



# Project for a network of automatic stations for UFO monitoring

MASSIMO TEODORANI, Ph.D. *Astrophysicist / UFOAC Consulting Scientist*

with:

MARK RODEGHIER, Ph.D. *Astronomer & Sociologist / CUFOS / UFOAC Scientist*

RON MASTERS, Ph.D. *Physical Chemist / UFOAC Consulting Scientist*

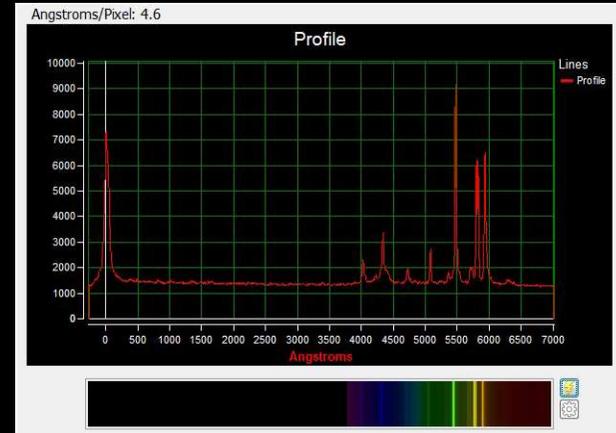
PHILIPPE AILLERIS, *UAP Observations Reporting Scheme / UFOAC Consultant*

**ABSTRACT.** After presenting the past history of scientific methodology applied to UFO monitoring operations, a new project for an automatic station is presented and discussed. Some engineering issues are also presented to stimulate a pragmatic “problem solving” aptitude. The proposed idea is intended to be a basis of discussion concerning the implementation of a permanent station containing off-the-shelf measurement instruments that, being in function all the time, are able to acquire scientific data on unidentified flying targets, which are then transmitted to investigators located at remote areas. Such an automatic station is intended to be a pilot project for a future network of similar stations scattered throughout the territory. The physical parameters that can be obtained this way are conceptually presented. The main goal is to ascertain what the nature of the UFO phenomenon is and which physics can be extracted from it.



Optimization of procedures for Spectroscopy  
of Light Sources in Low Light

*Using the Tests of Dr. Ron Masters  
and diagnostic analysis of Dr. Massimo Teodorani*



Choice: *3iCube* CCD Camera  
connected to a CD spectral  
grating used with field of vision  
 $100^\circ \times 80^\circ$

Planning to use 4-5 of these  
systems to cover the whole sky,  
using remote control.