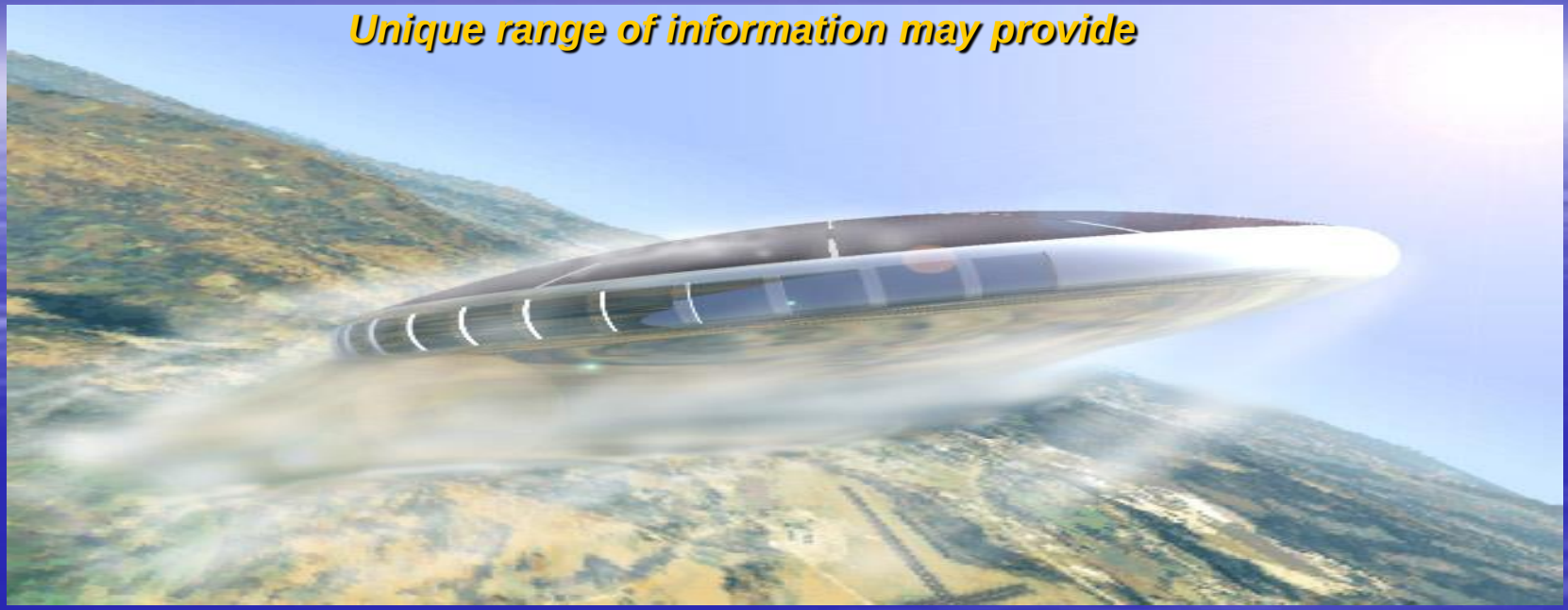
Eamonn Ansbro, Kingsland Observatory, Instrumented UFO research

Unique range of information may provide



- Instrumented AOP(UFO) research may discriminate what AOPs UFOs are

New information about structure of AOPs
Discovering new aspects of physics
It could expand our knowledge of a wider range of reality

Energy fields surrounding the AOPs
Spectra for determining the composition of AOPs
Magnetic and gravitational fields,
Selected radio frequencies and audio bands

Kingsland Observatory

- Location: Boyle, County Roscommon, North-West Ireland; area of AOP activity
- Purpose: Study of AOPs (UFOs) with appropriate methodologies and instrumentation.
- Applying an astrophysical approach similar to astronomy research. Avoided low res solution of using 120 deg FOV lenses. Especially used in meteor work. Wide field and unity magnification was avoided because of very low resolution resulting in possible lack of detail if a UFO were detected.

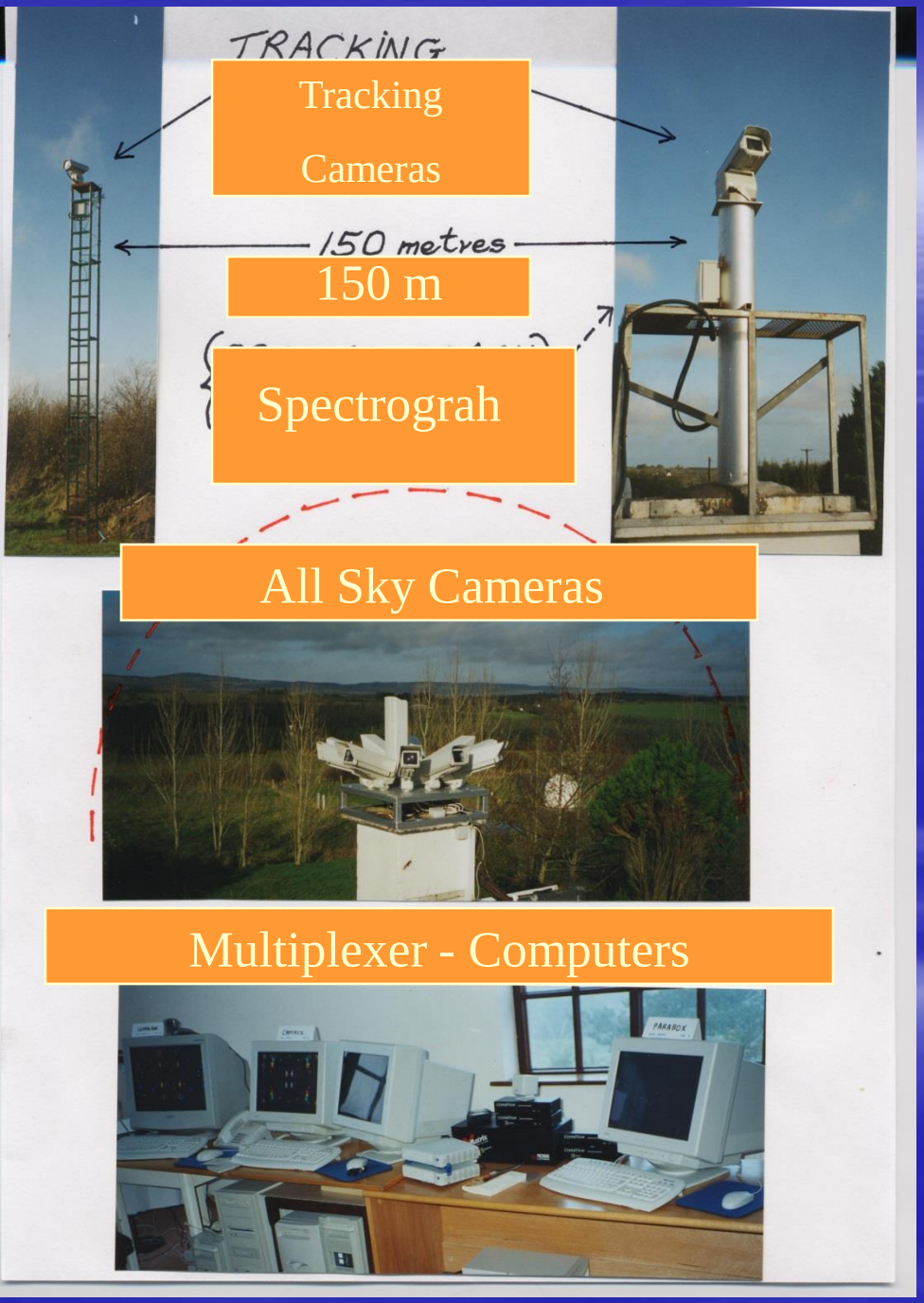
- 2001: Newly developed Instrumentation was deployed for experimental research. The following included:

- 11 cameras for all-sky coverage (4k sq. degs.) Adjustable lenses to suit FOV (36 deg)
- Hypersensitive CCD, 0.000035 lux
- Each camera sensitivity to a limiting magnitude 8

- The cameras are connected to a multiplexer that has motion sensing of the whole sky.
- A generated virtual grid of the whole sky, where each square within a virtual 1200 square grid, each square has a 4 square degrees FOV.
- Objects detected in any square are then triggered to activate two video tracking platforms with zoom lens/cameras.

Range of cameras with telephoto lenses

- Infrared camera
- Wide field spectral imager FOV 3 degrees
- Automatic tracking, speed AZ 48 degrees/sec, ALT 16 degrees/sec
- Stereo directional gamma detectors



- The instrumentation was developed and deployed in 2001.
- The tracking cameras to the left are both using 200mm zoom lenses. They are at a height of about 20 metres.
- The cameras are Watec types with Sony sensors.
- The All sky cameras are made up of 11 cameras. Each camera is at cardinal points on the sky with 36 degree FOV. The centre camera covers the zenith area.
- The whole sky has a virtual grid superimposed on the real sky. This is made up of about 1200 squares within the grid. Each square is 4 sq. degs.
- Any object that moves, or manifests and moves, is detected. It depends on size and brightness of object for night and day.

2005: Kingsland All-Sky Cameras and Tracking facility Operates on 24/7, FOV 180 degrees.

2 tracking platforms

Far left: 2005. Tracking platform with 200 mm F.L lens and camera.

A near infrared camera with low res lens.

A gamma ray directional detector in center (between two cameras) The gamma ray detector is surrounded by heavy lead sheeting rolled around the tube of the detector. This tube like structure offers itself to any potential gamma rays from a UFO. The detector requires power of 10k volts.

Another gamma ray detector is installed on another tracker at 150 meters distance as a baseline. Seen here with box enclosure on top of camera housing at left.

Far bottom left is a weather system

Spectrographs

- 2003: A spectrograph was installed. Slitless type (200 lines/mm) This turned out to be too low res for potential objects. The spectrograph used a F.L. 200mm lens. The advantage was that it could cover a wide field of view (FOV), but had a low res spectra output that might not show any spectra lines. The spectral lines are key to the composition of a UFO when in flight.

- 2004: A solution was to develop a medium res spectrograph that had a wide field of view but also had a slit. However, because UFO velocity movements can be unpredictable the light source has to get through the slit. A unique solution was achieved.
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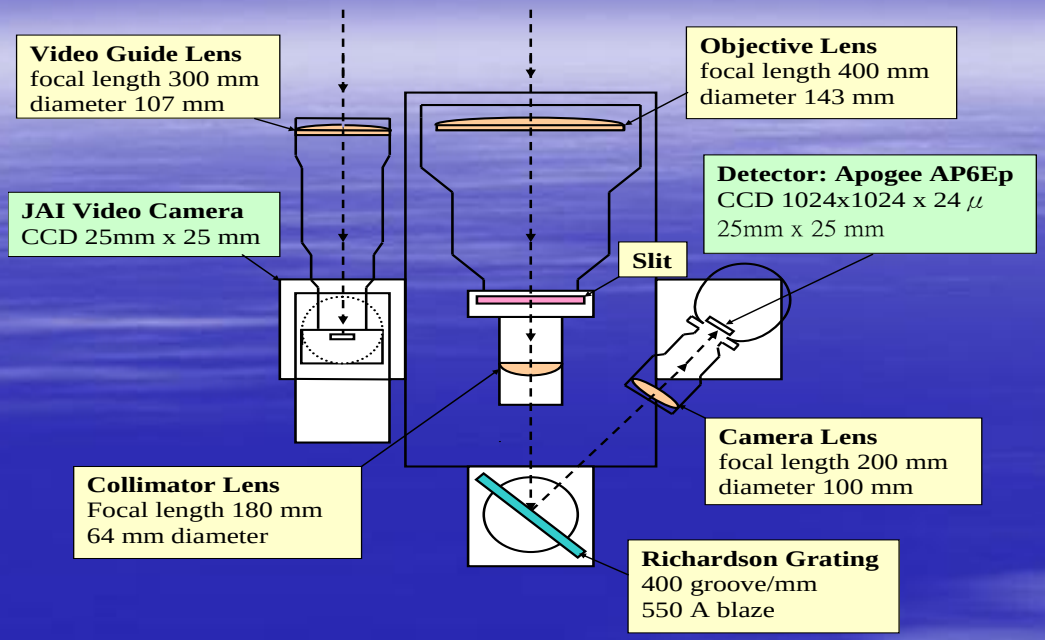
- This was achieved through experimentation and developed during 2005. The configuration was complex and extremely heavy. Early tests showed promise. The logistics of such a heavy load on a conventional tracker were problematic. Early tracking tests destroyed expensive gearing due to fast slewing responses at 30 degrees a second. The unique scanning mechanism has to be in sync with a the bi rotating grating. No large video sensors except very expensive EMCCD technology.

- Another problem was that technology has only now caught up for HD imaging using large sensors. At present this spectrograph is planned for upgrading with cooled large sensors that operate at 30Hz. This will provide a wide FOV when integrated within the system of at least 9 sq. degs.

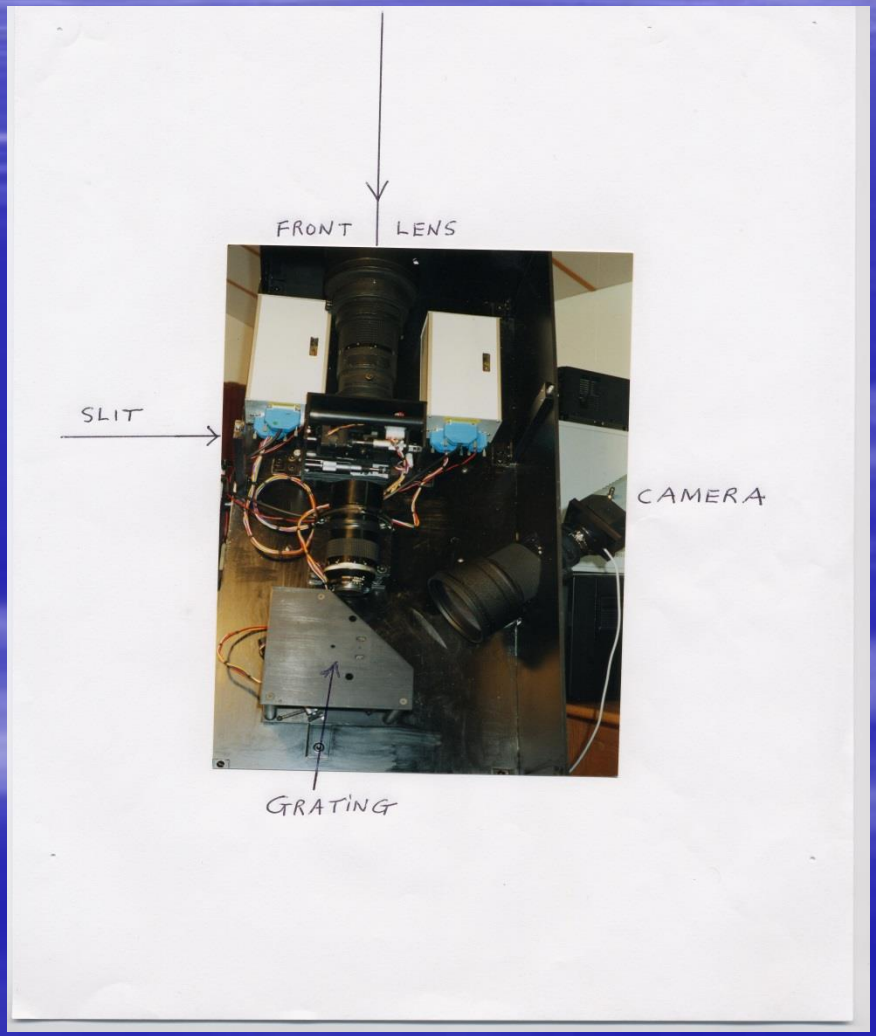


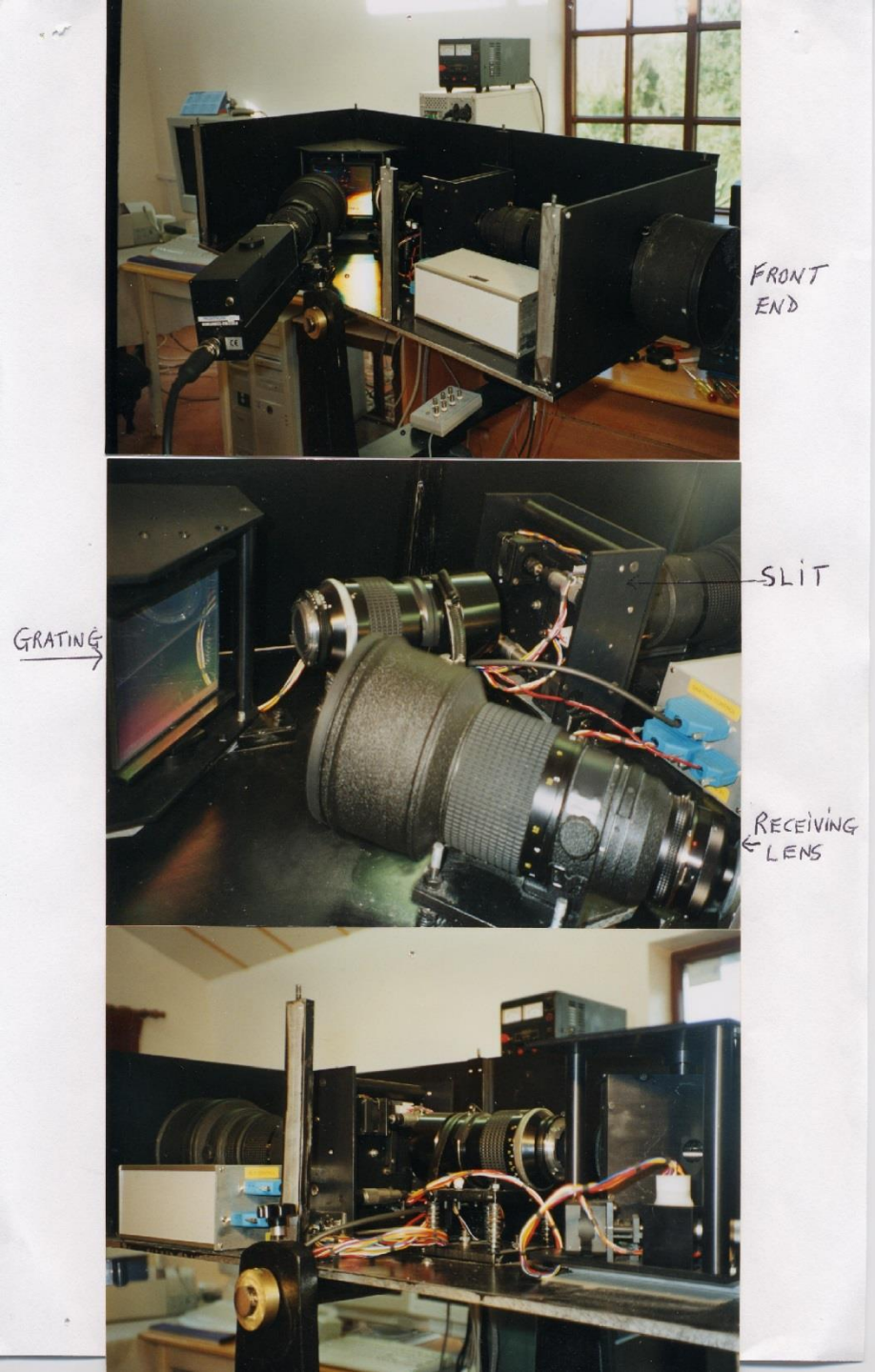
Wide Field Spectral Imager

Field of View: 3.5°

Wide-Field Spectral Imager

Applications for spectra of UFOs



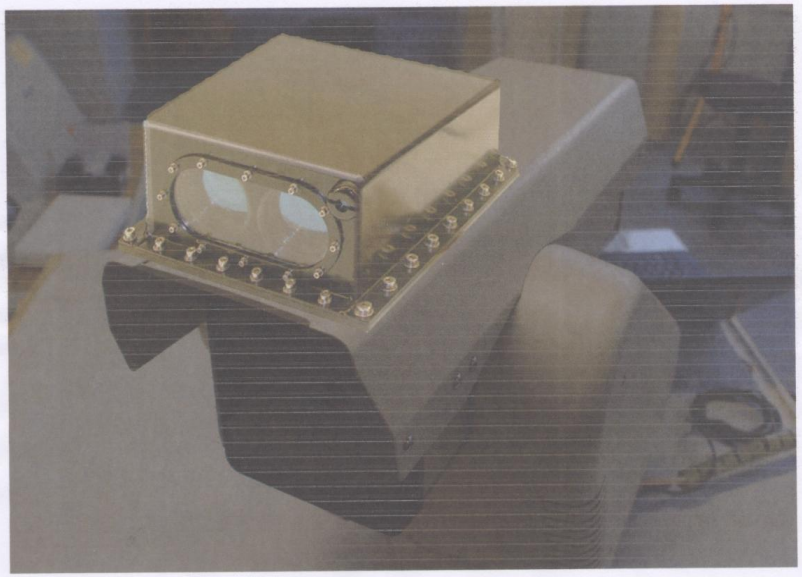


Wide Field Spectral Imager

Stand Alone Unit. Fast optics. Covers a FOV 9 square degrees, VIS spectral range

Prototype long range surveillance system with rangefinder

Rangefinder

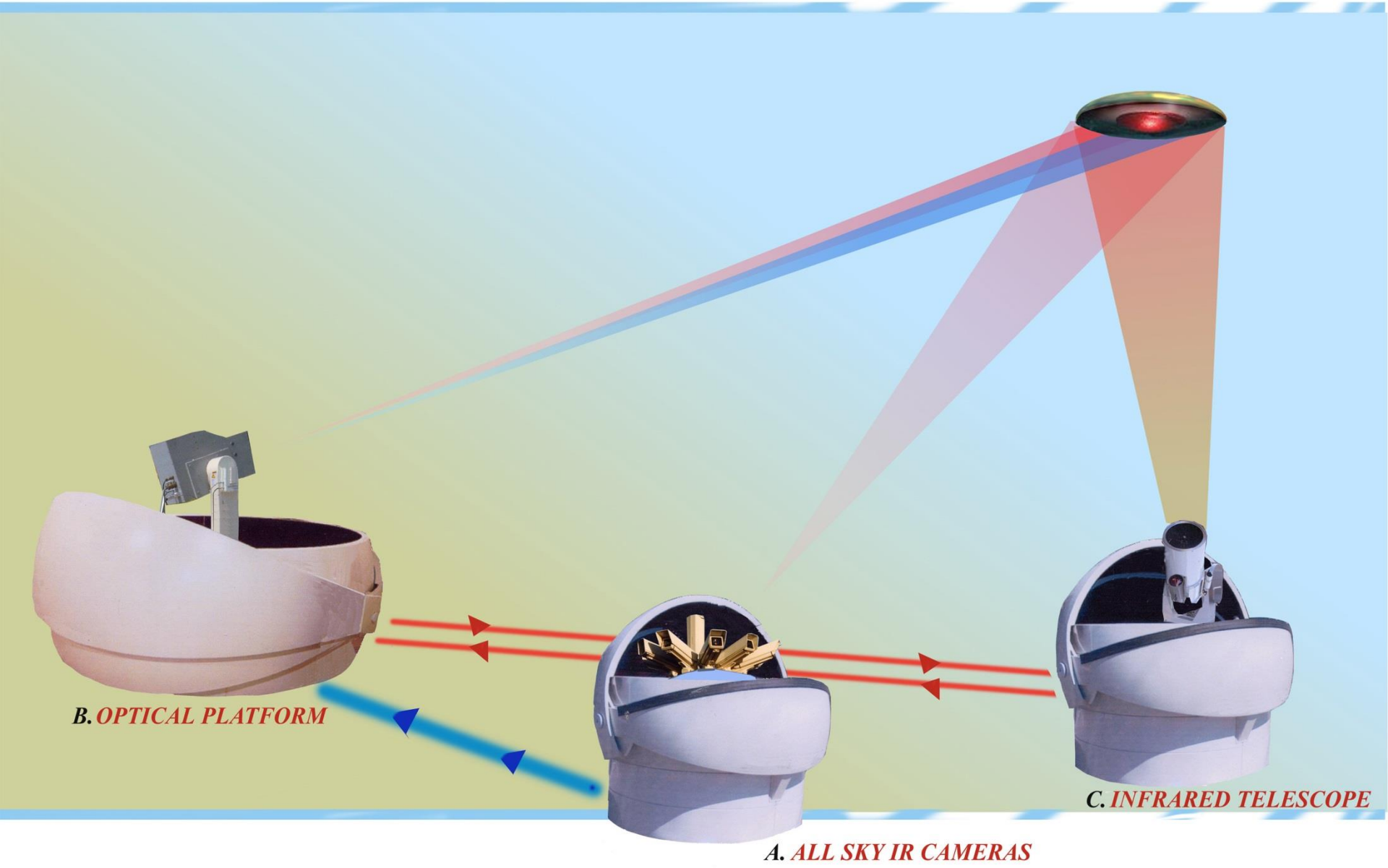


- 2013: A newly developed tracking system that has been custom designed (IR) 300mm F.L f/1.5 zoom lens with EMCCD technology. Early tests have achieved colour imaging at night at 2 km distance. UFO compass bearing and distance determination depends on velocity movement of UFO. The laser ranging capability can achieve 6km distance to UFO. The compass bearing is accurate to sub arc min.
- Optional 20 kms is possible.

Future 2014- 2015

- Upgraded spectrograph with newly designed tracker. Colour spectra using new cooled sensors. The newly designed tracker can be integrated into the existing all sky system.
- A new unique long range surveillance system for UFOs with panoramic and close ups in high resolution. This optical system can operate from 300 mm to 2500 mm at night in colour with capabilities for polarization and colour photometry. A newly designed tracker is complete.
- Compass bearing and distance to 20 kms using laser rangefinder. The software for the tracker has already been developed to sub arc min resolution.

KINGSLAND TRACKING STATION



Advanced Concept: Kingsland Tracking Station

- Kingsland Tracking Station using an All sky infrared cameras
- Detection alerts laser rangefinder to determine compass bearing and distance from optical platform
- Triggers long range telescope with IR, polarization and multiple band photometry

This data may inform us as to the following: Energy fields surrounding the UFO

- Spectra for determining the composition of the UFO.
- Additional instrumentation may inform us as to possible data on the following:
- Magnetic and gravitational fields,
- Selected radio frequencies and audio bands
- Type of propulsion system assuming it is of an ET nature?