(PAGE 1 OF 13)

RATIONALE

FOR

AIRBORNE LASER FLUOROSENSOR

SURVEY

NORTHRIGHT PROSPECT

VIC/P41

EAST GIPPSLAND BASIN

FOR

EAGLE BAY RESOURCES

April 2000

CONTENTS

Attachment

- World Geoscience Corporation Limited - ALF Brochure

1. BACKGROUND TO THE SURVEY

The Northright Prospect has been mapped as a large fault-closed structure at the northern edge of Vic/P41 in the offshore Gippsland Basin (see Figure 1). The structural culmination lies 20kms north-northeast of the Sole No.1 discovery well (see Figure 2), where gas is reservoired in the sands of the Late Gretaceous to Early Tertiary Latrobe Group (see Stratigrahic Table of Figure 3). These sands, which lie unconformably on older Cretaceous strata, shallow markedly towards the Northright feature and it is believed they provide a conduit for hydrocarbons migrating northward out of the generative area of the basin south of Sole No.1.

Critical northerly closure to the Northright structure is provided by the arcuate Lake Wellington Fault (see Figure 2). Mesozoic movement on this fault was normal, down-to-the-south. Subsequent Tertiary re-activation was in response to compressional forces which produced a scissor-like displacement along the fault, with reverse movement west of the Northright culmination, and additional normal movement to the east.

Seismic attribute analyses indicate anomalies associated with the Northright closure similar to those seen on the seismic data in the vicinity of the Sole gas field. While these DHI results are strongly suggestive of gas entrapment at Northright, it is recognised that factors other than the presence of hydrocarbons may be responsible for the anomalies.

The migration path, porous sands over the structure, and an adequate seal are all critical factors, and failure of any one of them would negate entrapment. However, it was considered that conventional 2D seismic, and probably even 3D seismic, could not adequately address these risk factors. It was therefore decided to employ another DHI technique, Airborne Laser Fluorosensor (ALF) to gain confidence firstly in the presence of hydrocarbons north of Sole No.1, and secondly in the accumulation of hydrocarbons at Northright.

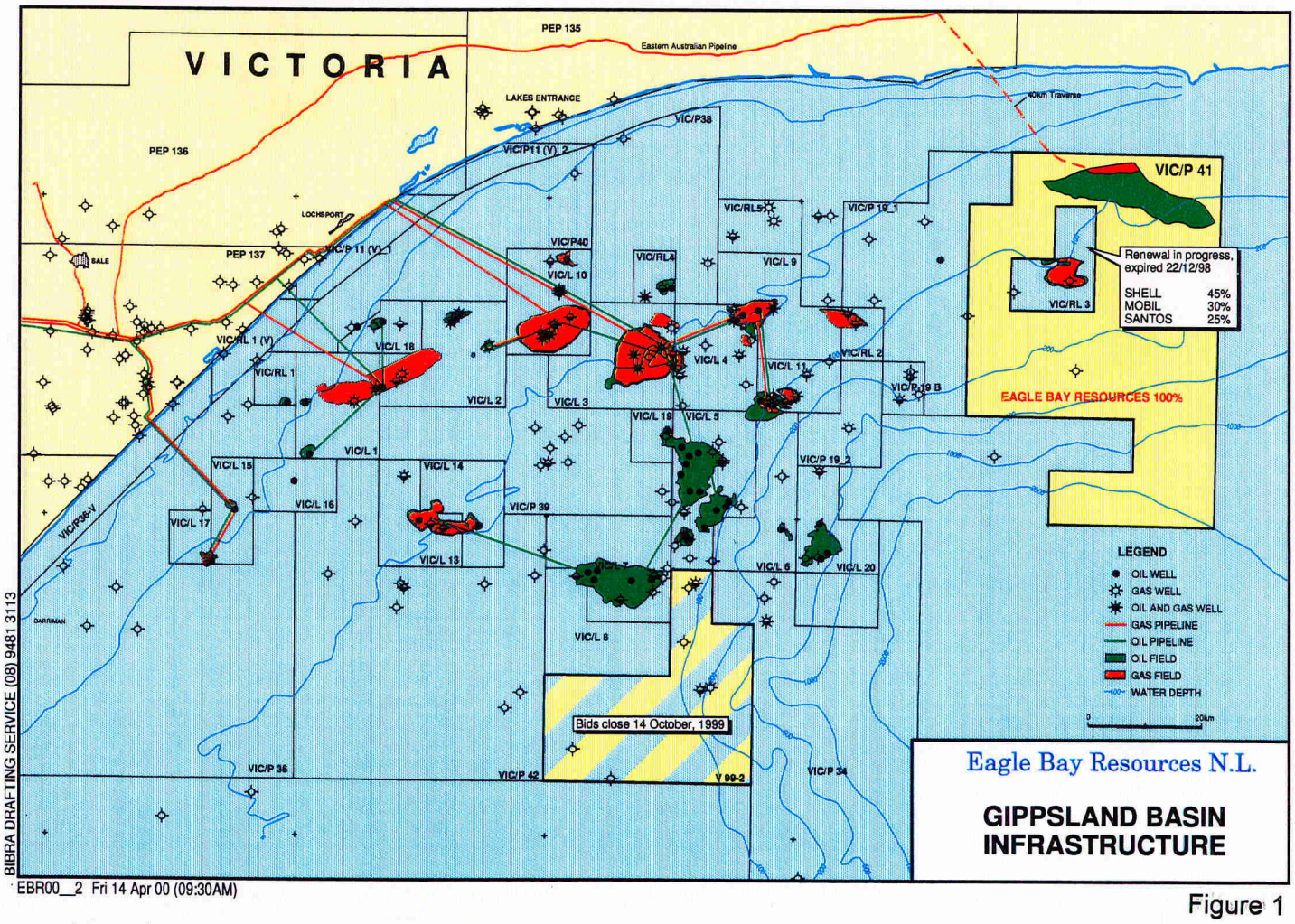
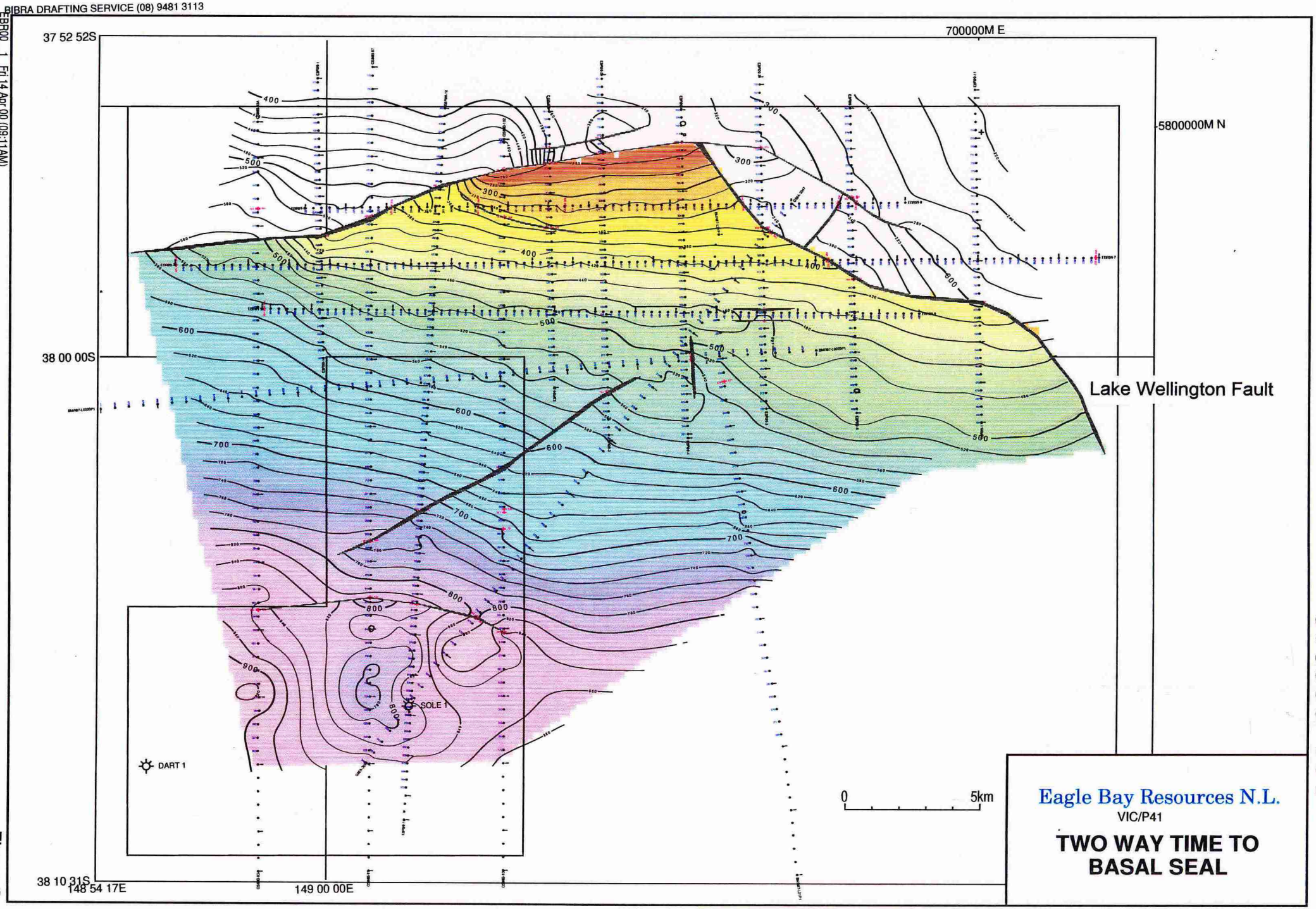


Figure 1



Eagle Bay Resources N.L.

VIC/P41

TWO WAY TIME TO BASAL SEAL

Figure 2

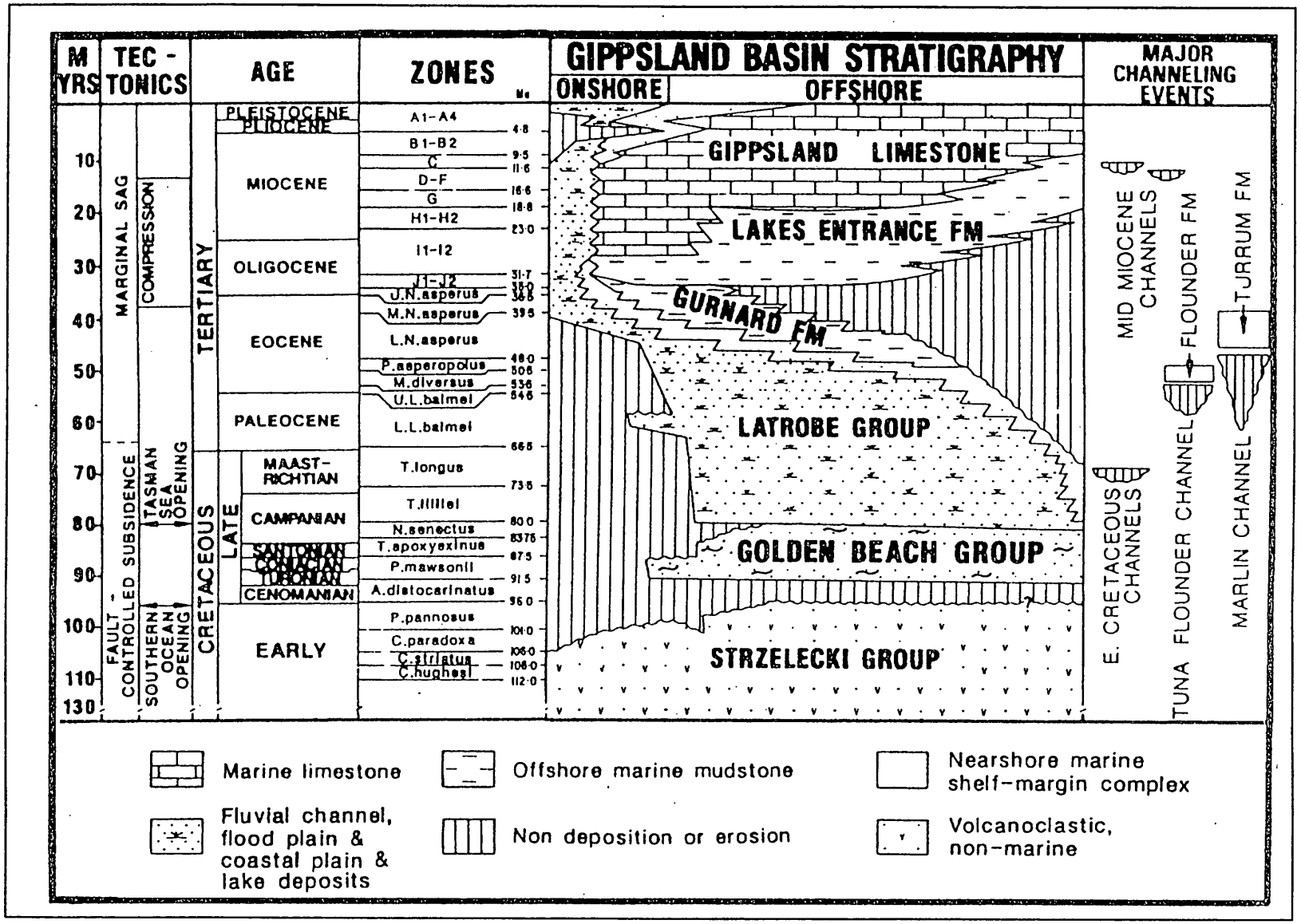


Figure 3

Gippsland Basin stratigraphy and tectonics (after Rahmanian et al., 1990).

2. AIRBOURNE LASER FLUOROSENSOR (ALF)

Airborne Laser Fluorosensor is the name of a World Geoscience proprietary technique which utilises UV light from a laser to induce fluorescence in any fresh petroleum forming very thin films on the sea surface (see Figures 4 and 5). In most petroliferous basins light hydrocarbons and gas seep up fault planes and through porous strata into the water layer. Mapping the patterns of these seeps can be of great benefit not only in identifying the presence of hydrocarbons, but also in defining migration paths and in gaining a better understanding of complex fault geometries. In Figure 6, ALF anomalies are indicative of migration pathways along which hydrocarbons are moving from source kitchens in the north to the updip shelfal area in the south. In this particular example, the leakage of hydrocarbons is also believed to be associated with the lateral extremities of re-activated faults.

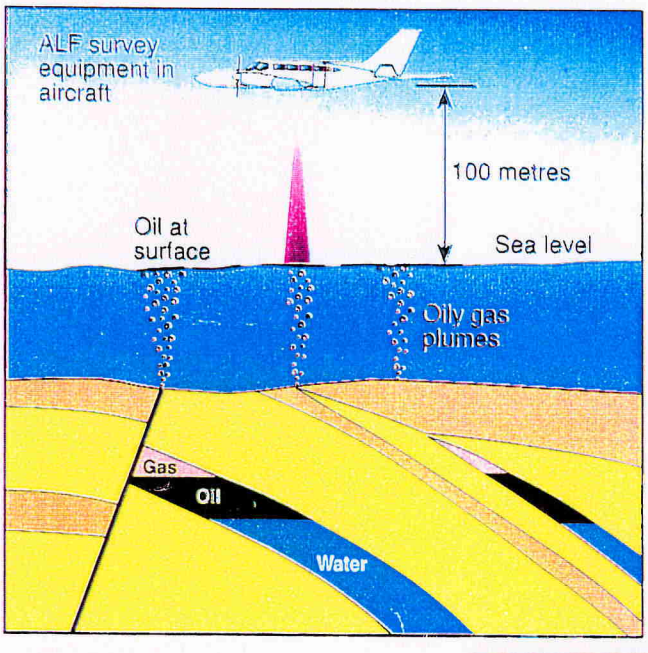


Figure 4

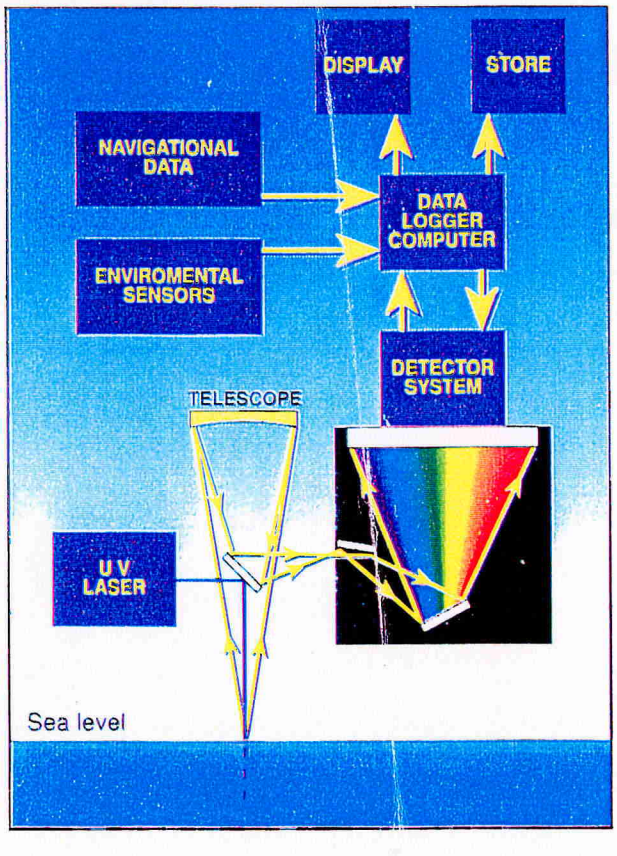
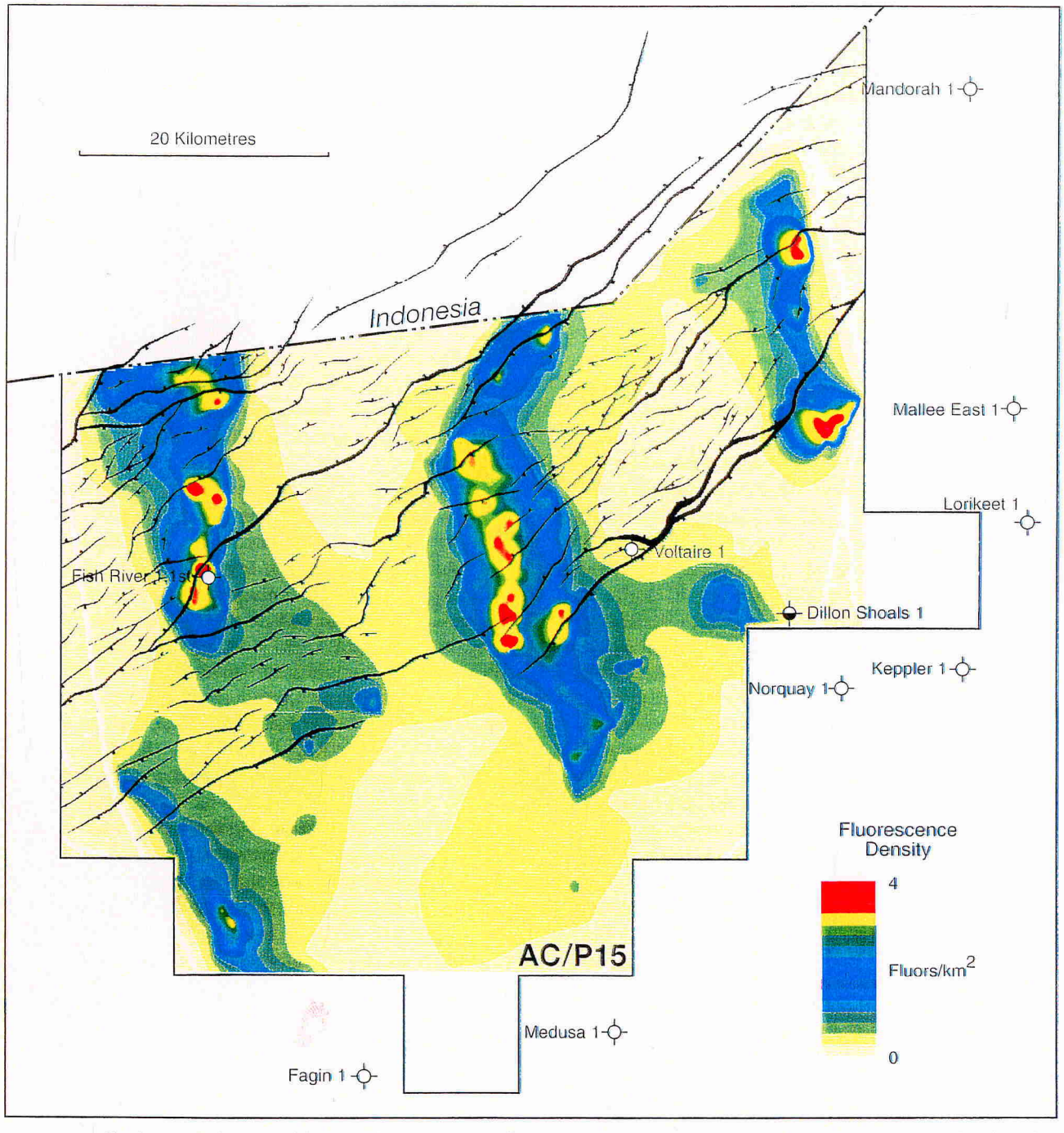


Figure 5



Fault trends in the AC/P15 region at the top Callovian level, showing ALF anomalies near the ends of major structural elements.

(from Hydrocarbon leakage on the North West Shelf, Australia: New Information from Integration of airborne Laser Fluorosensor (ALF) and Structural Data. Cooper et al in Proceedings of W.A. Basins Symposium, Perth, W.A. 1998).

Figure 6

3. EAST GIPPSLAND BASIN ALF SURVEY

Early in 1999 128kms of high resolution 2D seismic data were acquired over the Northright Prospect. The 11 new lines, which together with four older lines, form a roughly 2 × 3 km grid facilitate a relatively detailed structural mapping of the prospect. The ALF survey was designed to incorporate flight lines coincident with the 1999 north-south oriented seismic lines. This is to optimize the integration of ALF data and seimically-derived structural information.

In total, 78 north-south oriented flight lines made up the survey, with total of 1,358kms flown (see Figure 7). A preliminary map of the recorded fluor density is shown in Figure 8. Additional processing of these data is to be carried out before making a full integration of the results with all other available geophysical and geological data.

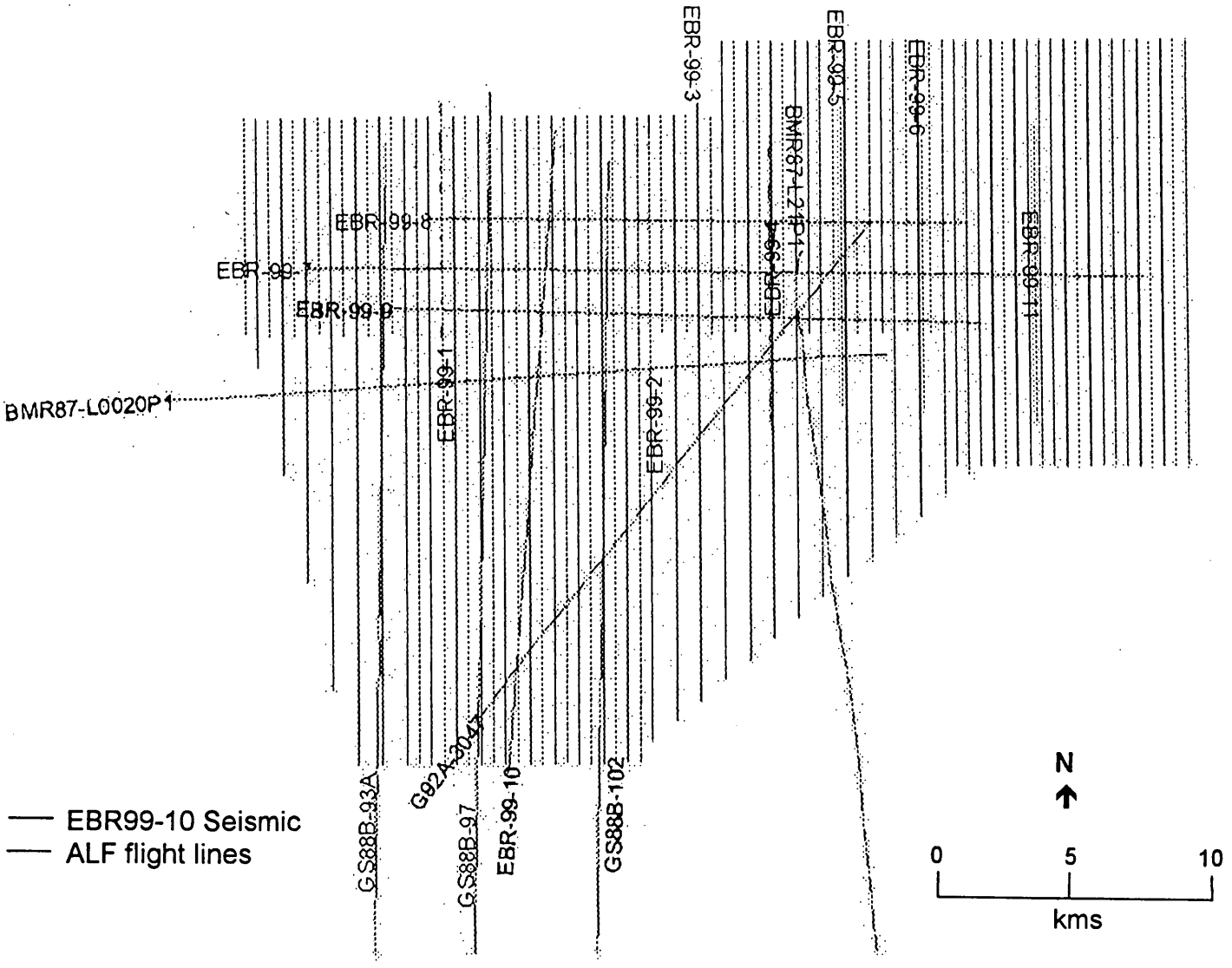


Figure 7

East Gippsland Basin ALF Survey : Fluor Density Image

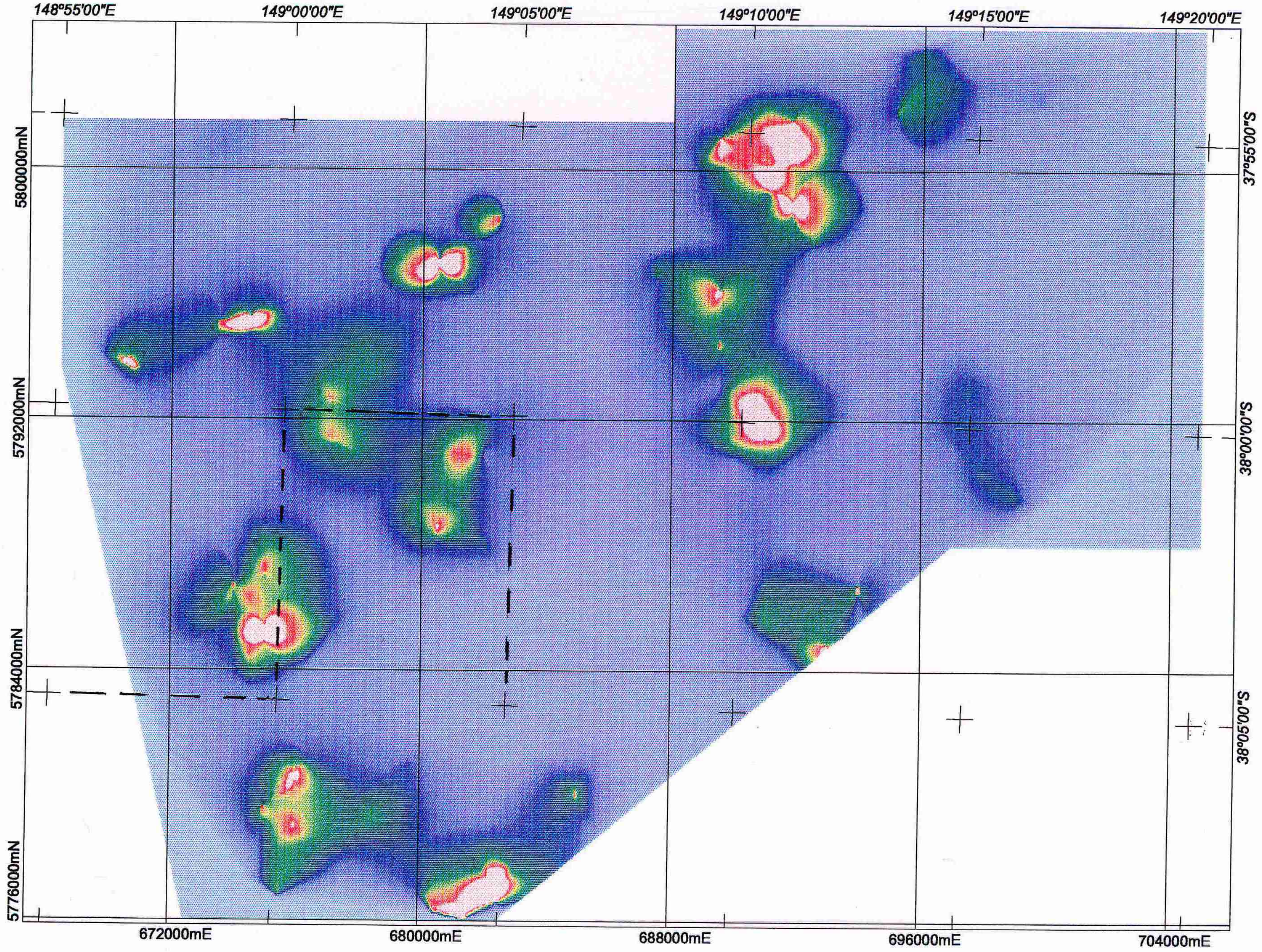


Figure 8

AGSO 02/6 2137 9 2 0 02/624992 52

4. PRELIMINARY INTREPETATIVE RESULTS OF EBR-ALF SURVEY

The fluor map in Figure 8 can be overlaid on the seismic structure map in Figure 2.

Seismic line EBR-99-10 shows a marked DHI at the Sole gas/oil field and a similar feature on the flanks of Northright but ending some 3km from the crest. The preliminary fluor map shows a pronounced oil leak at Sole and little response updip on line EBR-99-10 until the crest of the Northright structure where a major oil leak is evidenced. This is in keeping with an Eagle Bay interpretation which had the crestal section of Northright as a re-activated (upwards) fault block with a thick, preserved Golden Beach section. This re-activated fault block could now be considered oil bearing giving a possible crestal drill location on line 10 to test an oil leg and a thick Golden Beach section. A second, down-dip drill location would test the gas DHI on line EBR-99-10.

The majority of the other fluor anomolies (although not yet fully analysed) support a general oil skirt to the Northright structure, related to mapped fault leakage and very supportive of Northright as an oil prospect.

The largest fluor anomoly in the NE of the prospect area (see Figure 8) is updip of the mapped hinge point on the scissored Lake Wellington Fault. It has always been proposed by Eagle Bay that there would be Latrobe section against Latrobe at this hinge point and that an oil leak updip could occur, as evidenced on Figure 8.

5. COST COMPARISON: ALF vs SEISMIC

Eagle Bay Resources recorded 189km of 2D seismic in 1999 for a total cost of $121,000. On this basis our remaining year 2 commitment of 311km of seismic on VIC/P41 would cost $199,105.00.

The ALF Survey, based on contracted acquisition, processing, and interpretation estimates is $50 per km × 1358km plus $6250 mobilization plus $9,750 interpretation and some weather time. This will total around $96,000. Once the data is fully incorporated with the company's data base, the complete cost will be of the similar order of magnitude as the seismic costs.

6. CONCLUSIONS

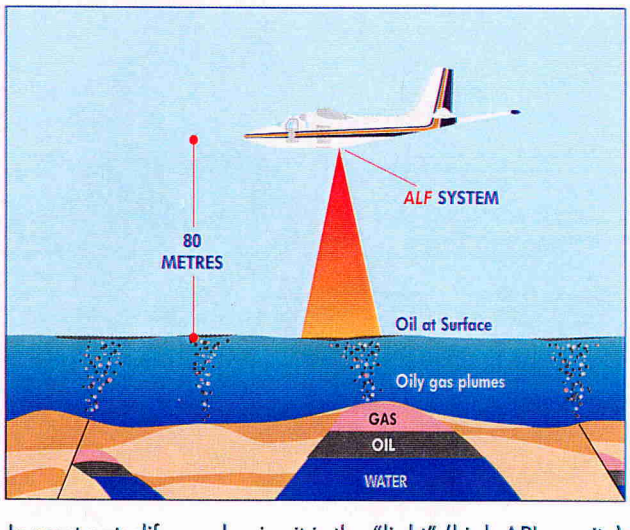
While Eagle Bay was committed to a further 311km of 2D seismic to complete the year 2 commitment on VIC/P41, it is clear from the preliminary results of the ALF survey that much more valuable exploration data has been gained by employing ALF rather than further seismic. This is because the DHI results on the seismic are erratic and cannot be formed into a reliable prediction of whether Northright is gas or oil bearing. At such shallow depths and with consequently low compression factors the economics of gas is far less attractive than for oil (even biodegraded oil, although we note salinities in Sweep Wahoo do not support uniform biodegradation as seen in Leatherback). The Alf Survey preliminary results support oil in Northright as opposed to gas. The final spectral analysis will define if the ALF response is coming from oil that is biodegraded, surface pollution (ie. spilled diesel) and with the help of the AGSO library of fluor signatures be able to determine from what area in the basin the oil orginated.

It is the firm conclusion of Eagle Bay that the ALF preliminary results have significantly upgraded the Northright oil prospect, considerably more than conventional seismic would have. As the survey costs are roughly equivalent we urge both the State and Federal Government bodies to substitute the ALF survey for the balance of the Year 2 seismic in VIC/P41.

Eagle Bay is negotiating for 3 well slots on the Ocean Epoch for September 2000 if Government approval to enter year 3 is given.

ANSWERING YOUR QUESTIONS ABOUT SOURCE, CHARGE AND TRAP INTEGRITY

Most of the world's known hydrocarbon producing basins contain oil seeps. Seeps indicate that either a petroleum system currently exists in an area, or that one has existed in the area in the past. On the surface, World Geoscience's proprietary Airborne Laser Fluorosensor (ALF) is the best tool to detect small, thin films of oil that fluoresce within the ultraviolet spectrum. In a petroleum system context, ALF data represents a valuable addition to the risk-reduction strategy employed by explorationists.



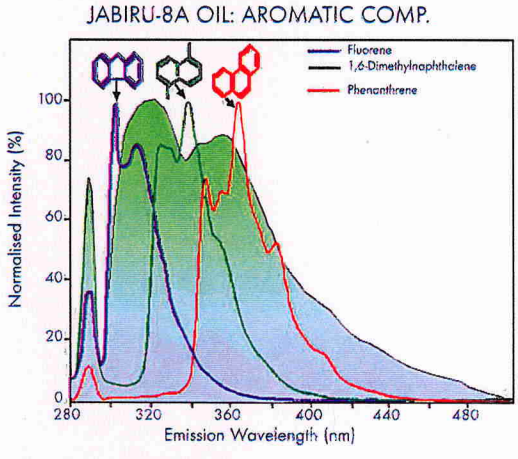
In most petroliferous basins it is the "light" (high API gravity) hydrocarbons and gas which seep most easily. These form very thin films on the sea surface that fluoresce when stimulated. They are difficult to see as discrete slicks and their thinness has minimal effect on suppression of the surface tension of the seawater. This rules out many conventional remote methods of seep detection such as satellite monitoring and other airborne techniques which are best suited to mapping thick, heavier oils.

ALF is differentiated from other seep detectors by being an "active system" that uses a consistent powerful energy source. ALF uses a solid-state laser to generate the UV light which is pulsed from the aircraft, flying at 80m above sea level onto the ocean surface at a high frequency (50Hz). This induces fluorescence in any fresh petroleum film it encounters.

The returning fluorescence is captured by a powerful telescope and then registered using a spectrometer in the wavelength range of 200nm to 700nm. This information is recorded in 176 channels and stored together with navigation and environmental information. High Resolution Aeromagnetic data can also be collected simultaneously with the ALF data to provide structural control to the seepage data.

A video camera is also used to record an image of the ocean surface where the laser impinges. These images are used to assist in classifying the ALF spectra detected in the processing of the data. Post-survey, the data is transferred to the field work station where it is processed and analysed. Pollution and foreign matter which may also cause fluorescence are identified and removed from the data. The aromatic component of the oil flouresces which has the potential to give information on maturity, biodegradation and source direction.

The ALF spectra are then plotted with their precise GPS locations. ALF data can be presented as a point data, grid or contour using specialised interpolation techniques. These produce hydrocarbon seepage maps which are a powerful exploration tool for grading plays and prospects.



Above: *Example of an ALF Spectra showing aromatic components.*

"TOGETHER ALF AND HIGH RESOLUTION AEROMAGNETICS DEFINE KEY ELEMENTS OF PETROLEUM SYSTEMS IN OFFSHORE BASINS"

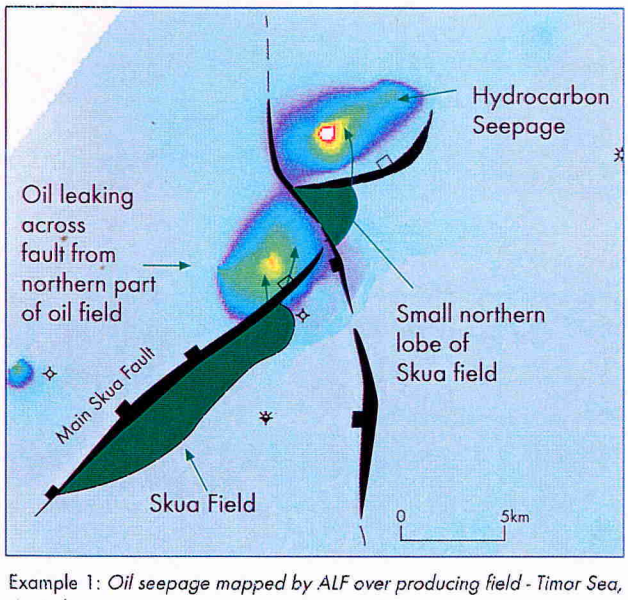
- High Resolution Aeromagnetic and seismic data define the basin architecture and the intra-basin sedimentary structure.

  Hydrocarbon kitchens, fault-related migration path-ways and structures along migration pathways can be identified.

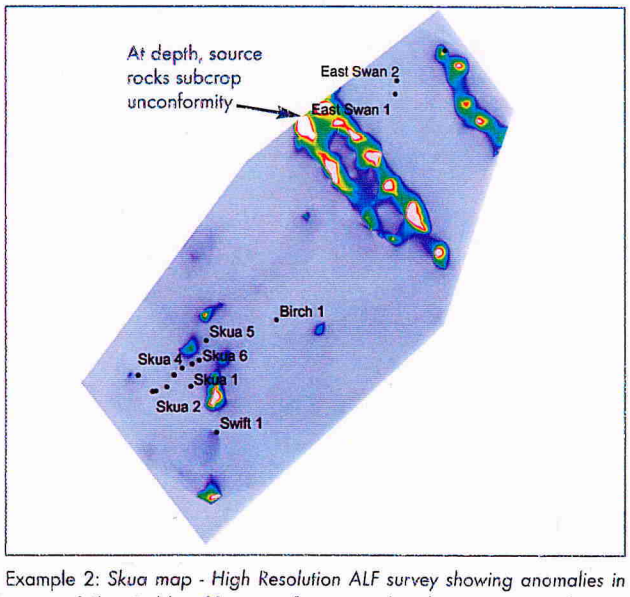
- ALF data provides control on the hydrocarbon type, and position of sea-bed hydrocarbon seepage.

  It delineates the sea-bed trace of leaky, active migration pathways and areas where the integrity of sealing lithologies is breached.

- The integration of ALF, High Resolution Aero-magnetics, sea-bed coring, geochemistry, seismic data and subsurface well information can reduce risk and define exploration targets.



Example 1: *Oil seepage mapped by ALF over producing field - Timor Sea, Australia.*



Example 2: *Skua map - High Resolution ALF survey showing anomalies in vicinity of Skua Field and locaton of source rocks subcropping unconformity.*

WORLD GEOSCIENCE CORPORATION LIMITED eMAIL: info@perth.wgc.com.au

HEAD OFFICE: PERTH, Australia Tel: (6 18) 9273 6400 Fax: (6 18) 9273 6466
GABORONE, Botswana Tel: (267) 563 836 Fax: (267) 563 837
CALGARY, Canada Tel: (1 403) 261 1958 Fax: (1 403) 261 1959
GUILDFORD, UK Tel: (44 1483) 453 060 Fax: (44 1483) 453 061
HOUSTON, USA Tel: (1 281) 647 9025 Fax: (1 281) 647 0825
JAKARTA, Indonesia Tel: (62 21) 766 1181 Fax: (62 21) 750 4742
KUWAIT CITY, Kuwait Tel: (965) 242 1119 Fax: (965) 243 7867

East Gippsland Basin ALF Survey : Fluor Density Image