Education

We wish you all a Merry Christmas and we look forward to the new year having secured these few wins of the year past:

- The first trials of tele-teaching with UWA were very successful and we commence teaching ‘Reservoir Engineering Fundamentals’ to UWA in February 2009.
- The new 2-year M Eng Sc (Pet Eng) program commences in 2009 and will be attractive for overseas students seeking a 2 year degree to obtain PR status.
- M Pet Eng classes will be run starting 3pm to 8pm each day in 2009 to allow those from industry to take the M Pet Eng part-time.
- The new B Eng (Pet Eng) program will be introduced during 2009 to commence second year operations in 2010. This will produce more graduate petroleum engineers in the future.
- Our Master’s program has been approved by the Commonwealth government for AUSTUDY support.
- We expect to have a full class of 30 to 40 students in the 2009 M Pet Eng class.
- Four Saudi Aramco sponsored students have arrived to take the Foundation Year in 2009, ready to enter second year B Eng in 2010.

Research

- We were delighted to complete our first relatively perm tests on core provided by CSIRO on their MEOR project, using our Core Flooding Lab.
- We are pleased to announce that Curtin University has granted 4 PhD CIRTS scholarships and one prestigious Endeavour PhD research scholarship to the department. This will expand our research capacity as well as assist our teaching of petroleum engineering. All of these PhD students have highly regarded Masters in Petroleum Engineering degrees from quality overseas universities- a pre-requisite for PhD entry at Curtin.

Future plans

- We are building two new research laboratories, one for borehole geodynamics and the other for fluid mechanics which will be ready by mid-2009.
- We are developing a relationship with Indonesian universities to teach a joint Master’s program with them during 2009.

Please see the Technical Paper by PhD student Reza Taheri over the page
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Keeping the COGS oiled with Curtin Petroleum Engineering- the Good Oil
Remote sensing, fuzzy logic and GIS in petroleum exploration

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Background
To reduce the exploration costs for hydrocarbons during the reconnaissance stage of exploration satellite images and available surface data could be used. This research identified three major surface patterns derived from satellite data which are promising: surface temperature, vegetation cover and gas geochemistry. These were integrated and their correlation to the presence of petroleum investigated.

Method
By employing GIS and fuzzy logic a dynamic model was introduced which could be applied to any new petroleum exploration target using variable input data of that particular exploration target.

A selected study area consisted of almost 50 existing petroleum reservoirs in onshore Iran. 20 ASTER scenes over the study area were purchased from NASA and surface thermal data over these existing fields were retrieved from the satellite images, an example of which is shown in Figure 1.

Spatial analysis of Land Surface Temperature (LST) retrieved from ASTER data was performed following spatial pre-processing and registration of satellite data assigning fuzzy membership values to role-playing criteria. Finally, the data were integrated for correlation establishment analysis between the presence of petroleum and investigated surface data.

Conclusions
• By employing inexpensive ASTER data, thermal anomalies over existing oil reservoirs were detected
• High correlation exists between petroleum reservoirs of the study area and detected thermal anomalies
• There were constraints on band combinations in ASTER within the scope of this research
• Radon and Helium survey maps and vegetation cover maps correlate with derived thermal anomalies from ASTER satellite data