

Cumulative oil & gas discovery versus time, exploratory drilling, success ratio and average field size per continent

From field reserves data at end 2008 corrected to represent the real 2P, the cumulative oil (including condensate) discovery is plotted by continent:

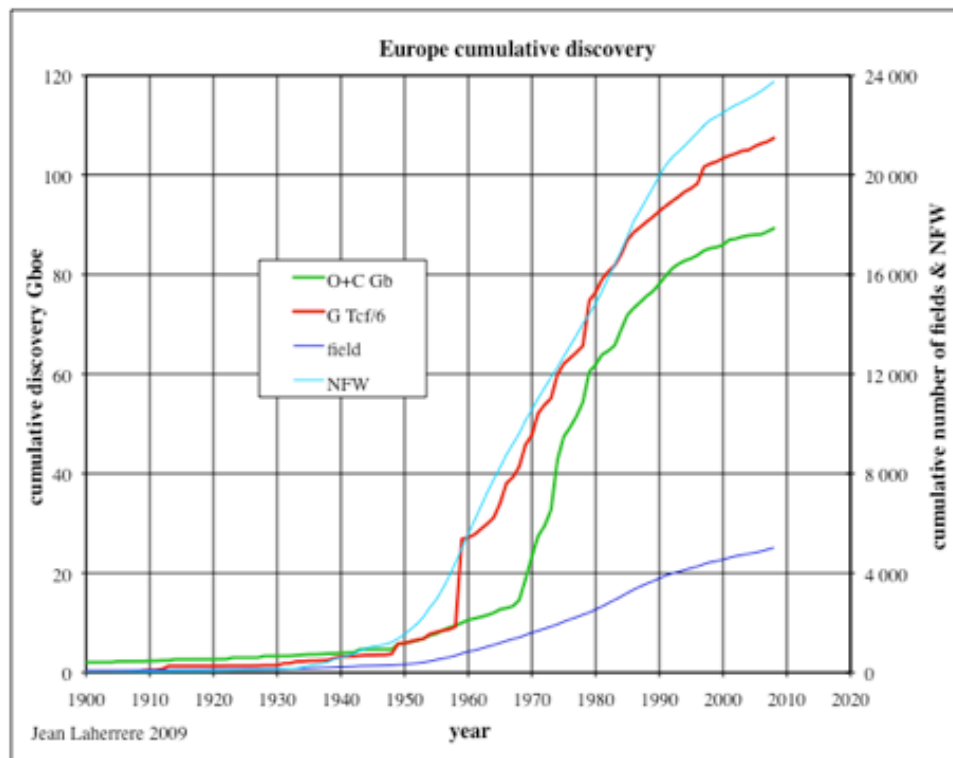
- versus time,
- versus cumulative pure exploratory drilling (new field wildcats = NFW) = creaming curve
- versus cumulative number of fields

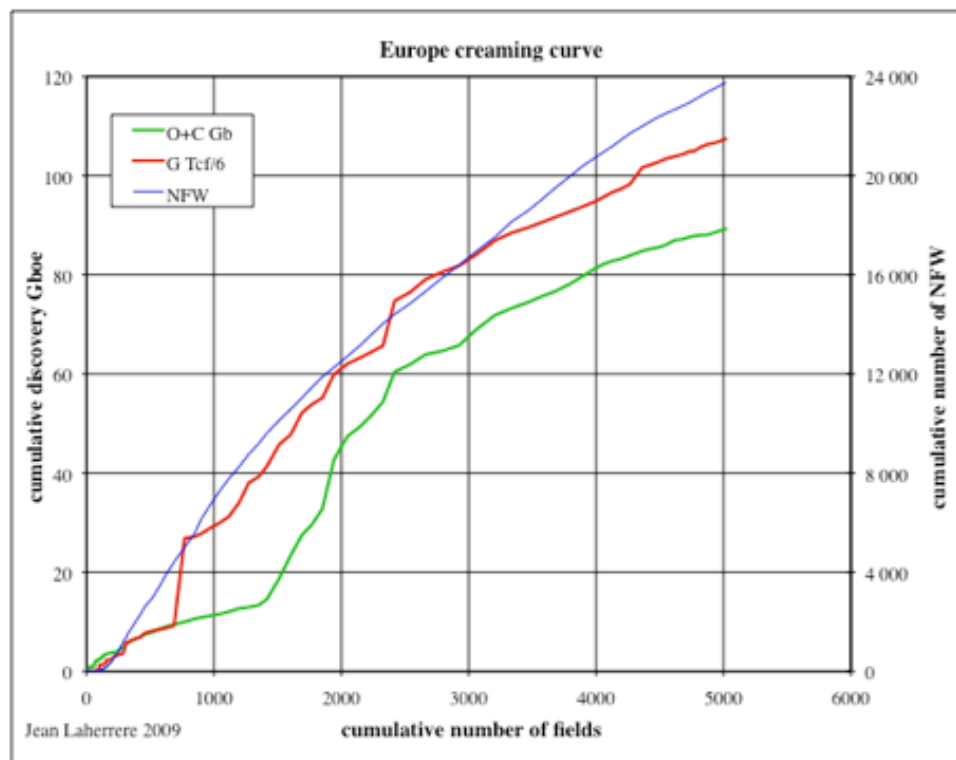
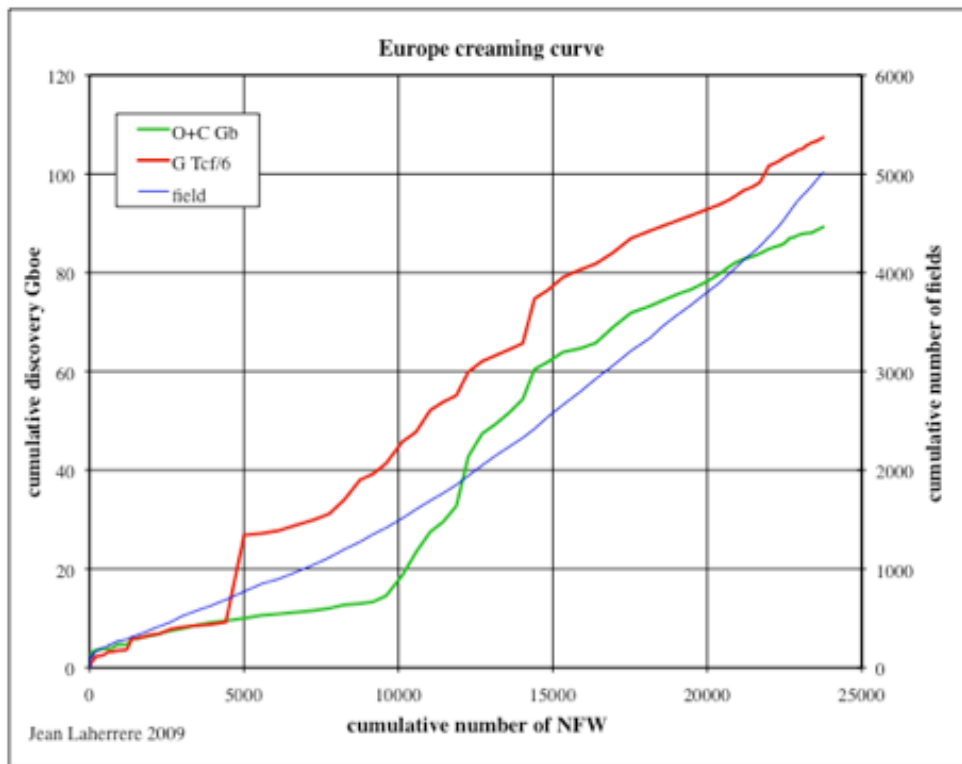
The success ratio and average oilfield size are also plotted

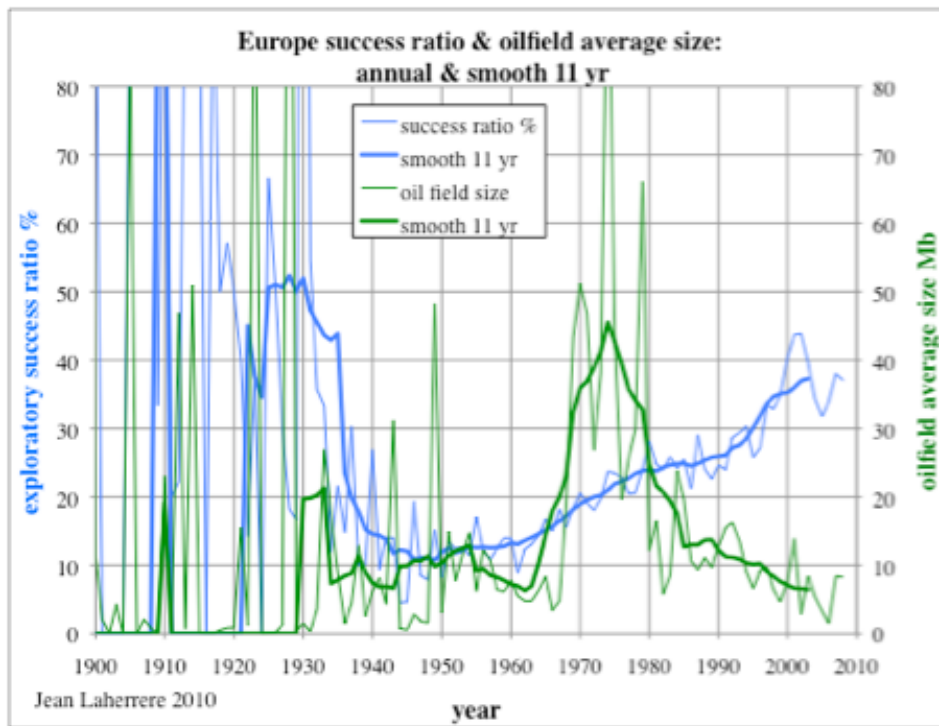
O+C means oil and condensate and excludes extra-heavy oil

G means gas and is reported as $G_{boe} = Tcf/6$ and excludes unconventional gas

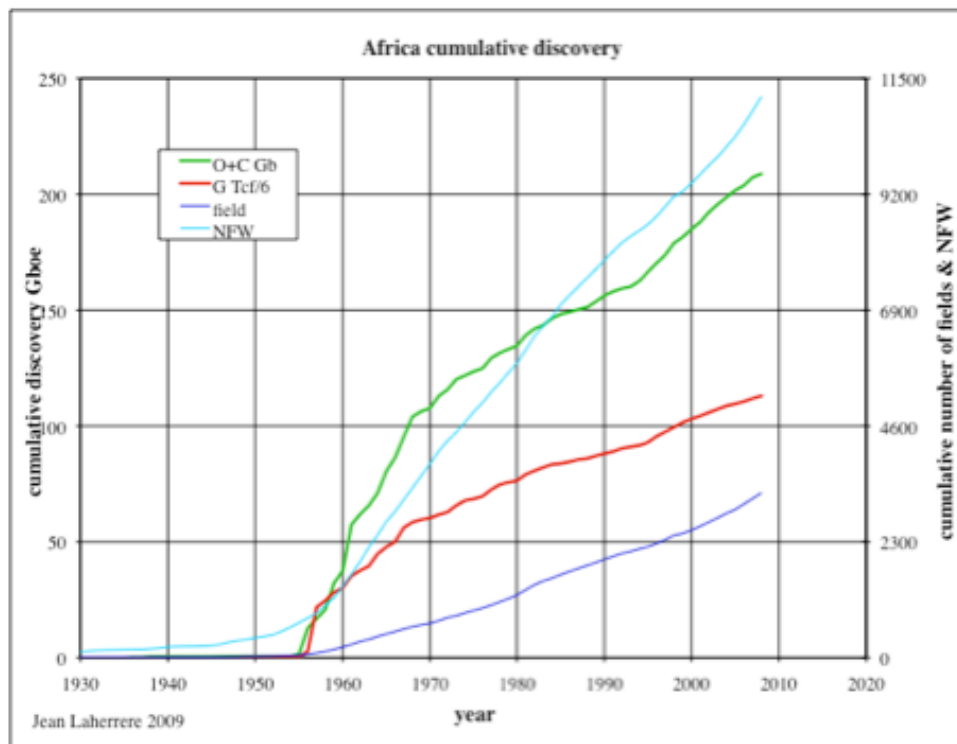
-Europe

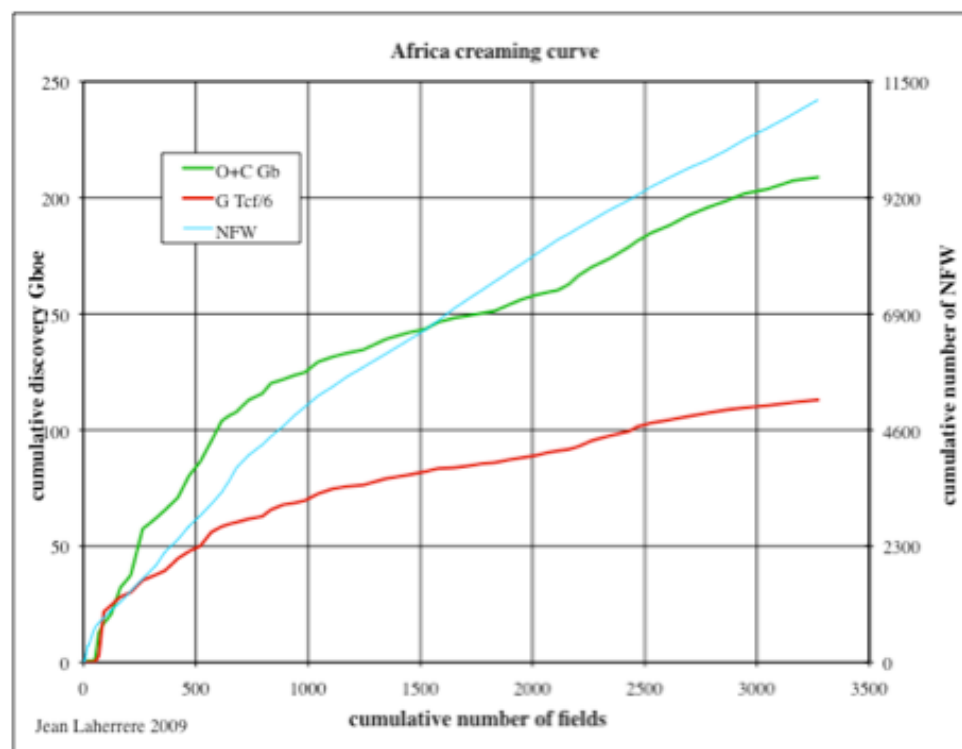
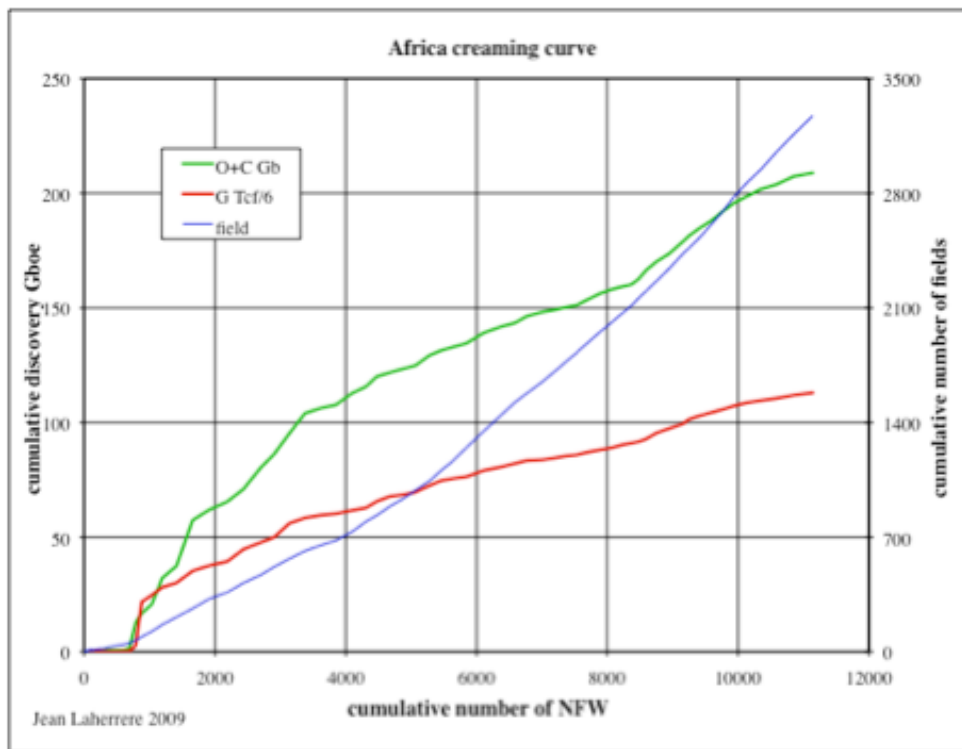


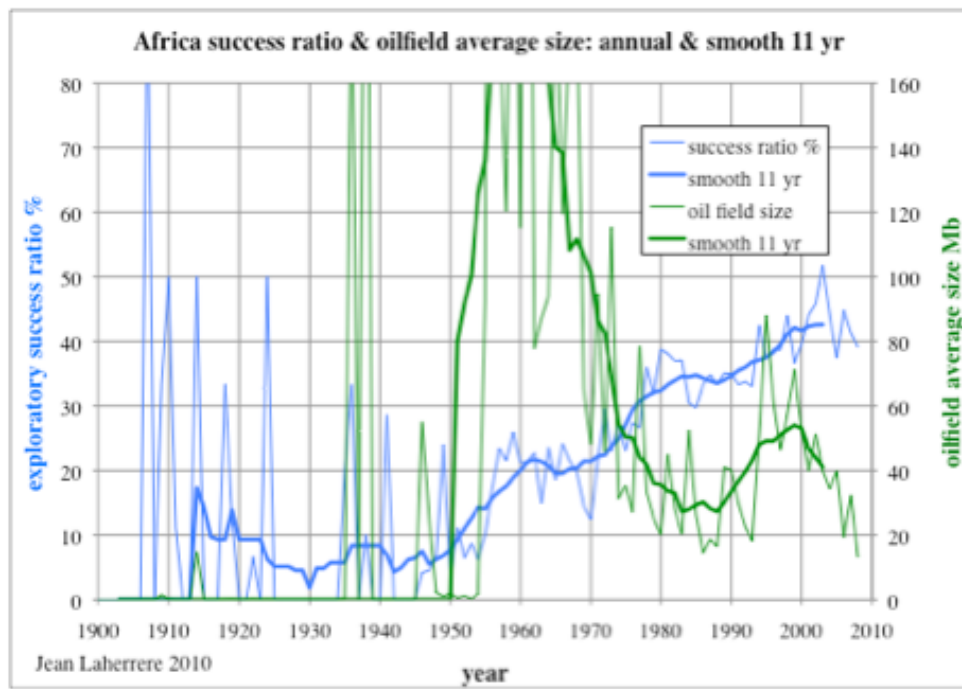




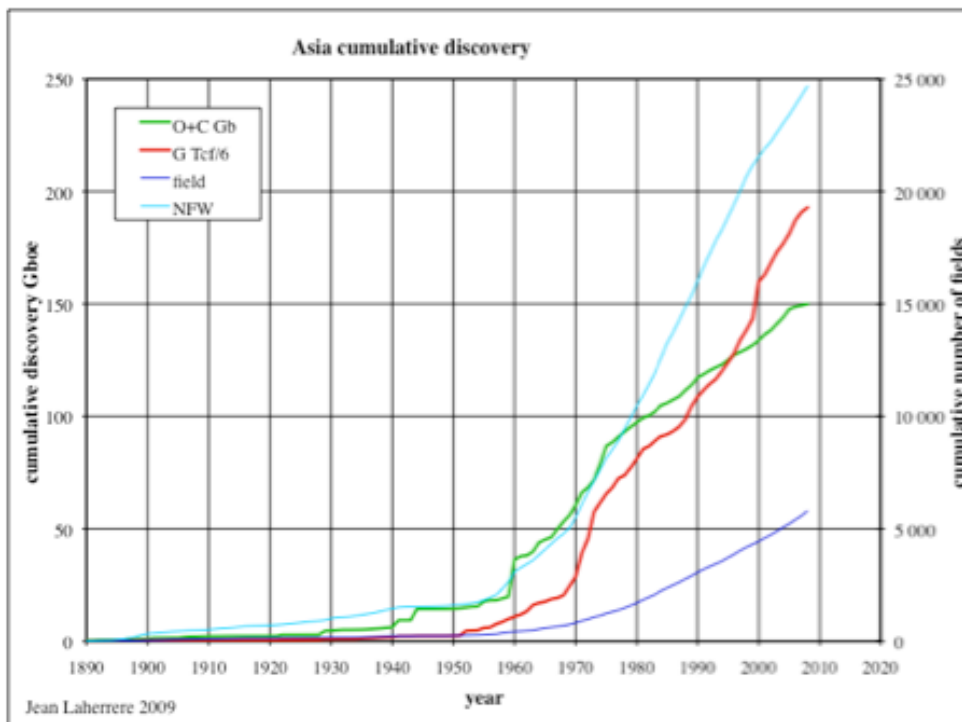
-Africa

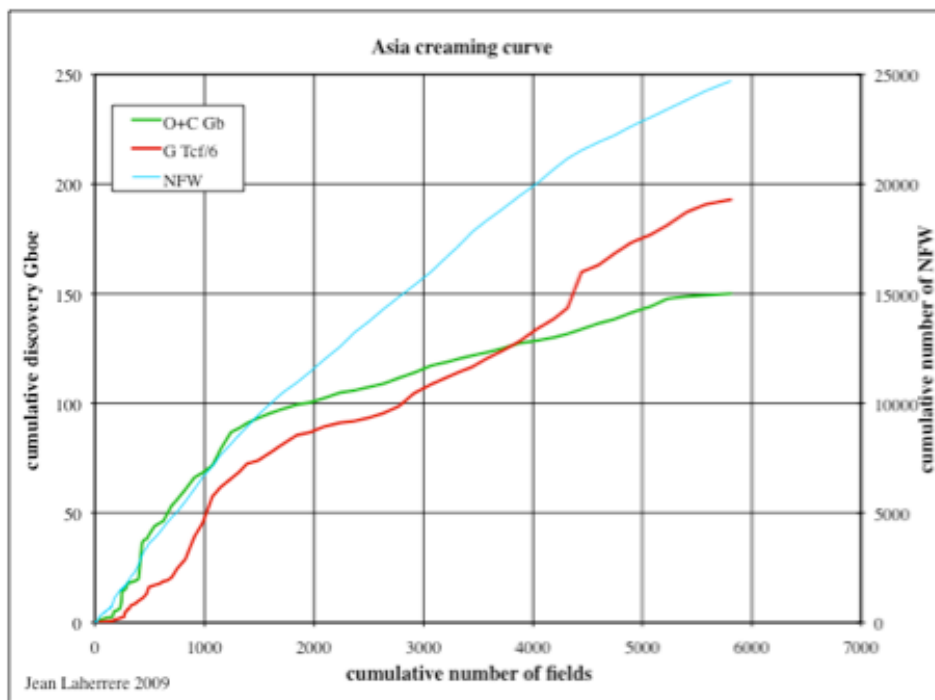
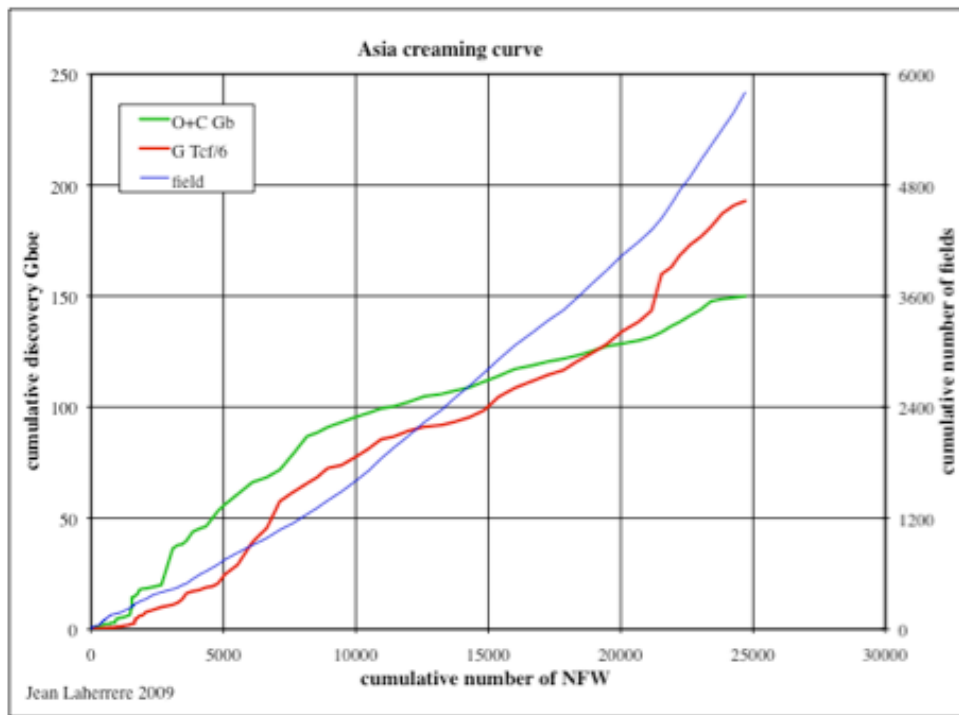


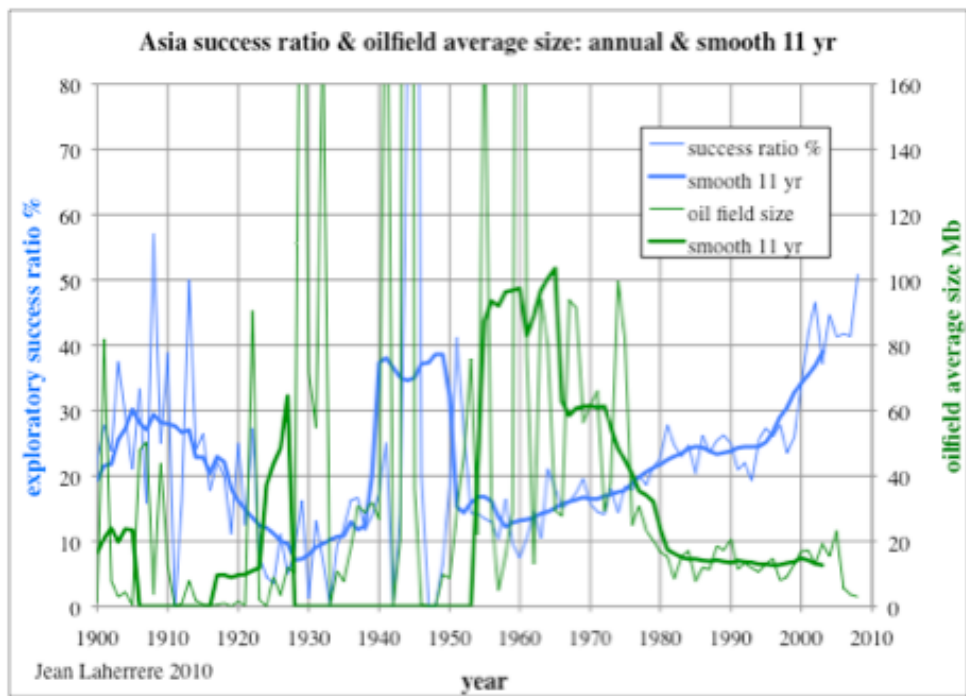




-Asia

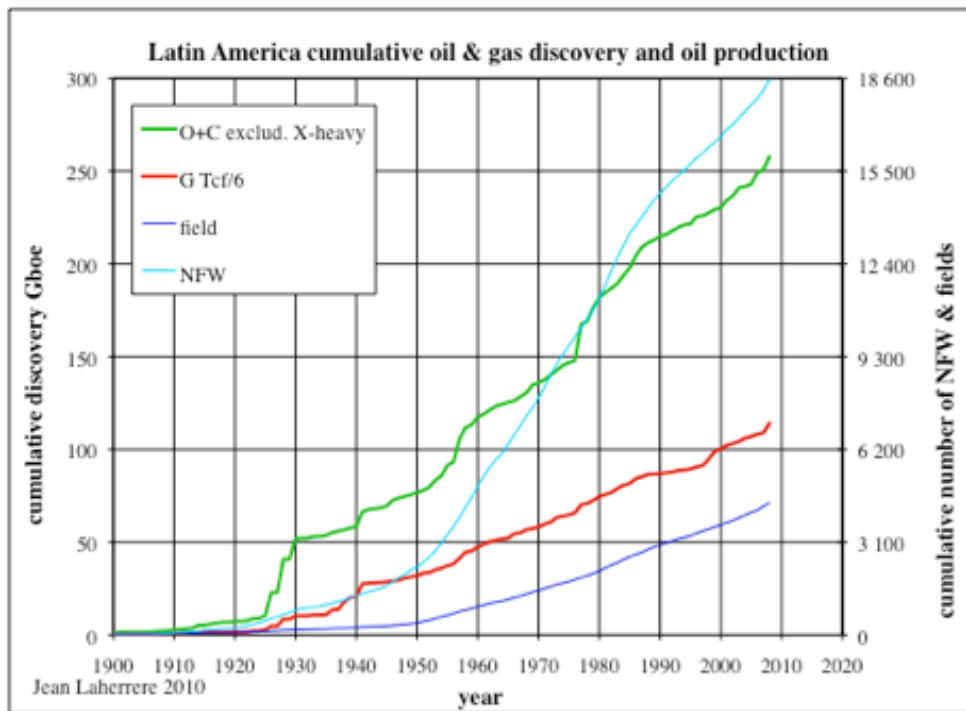


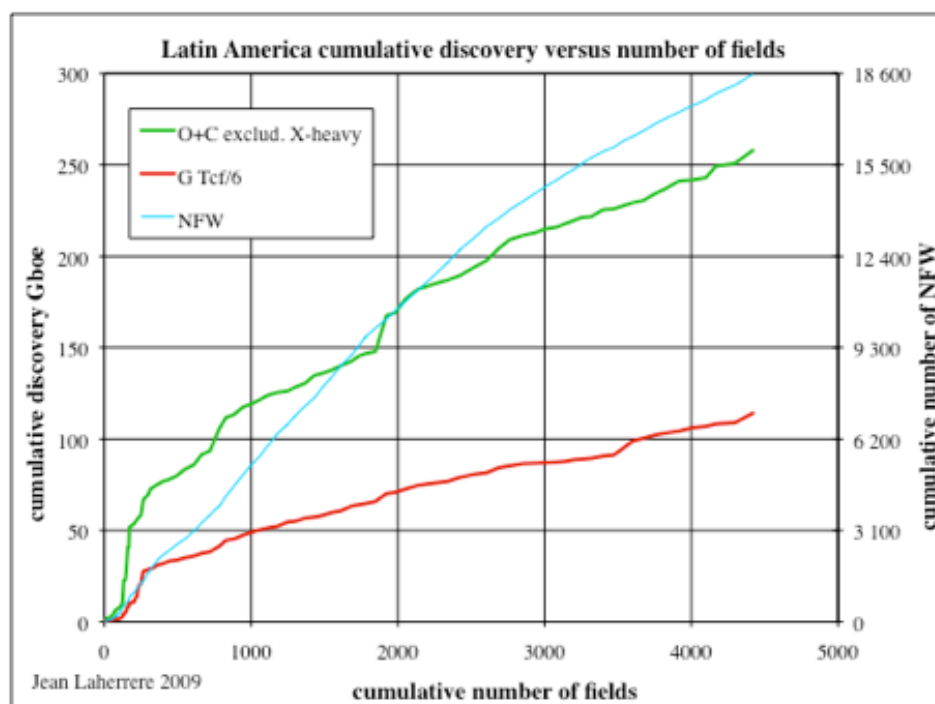
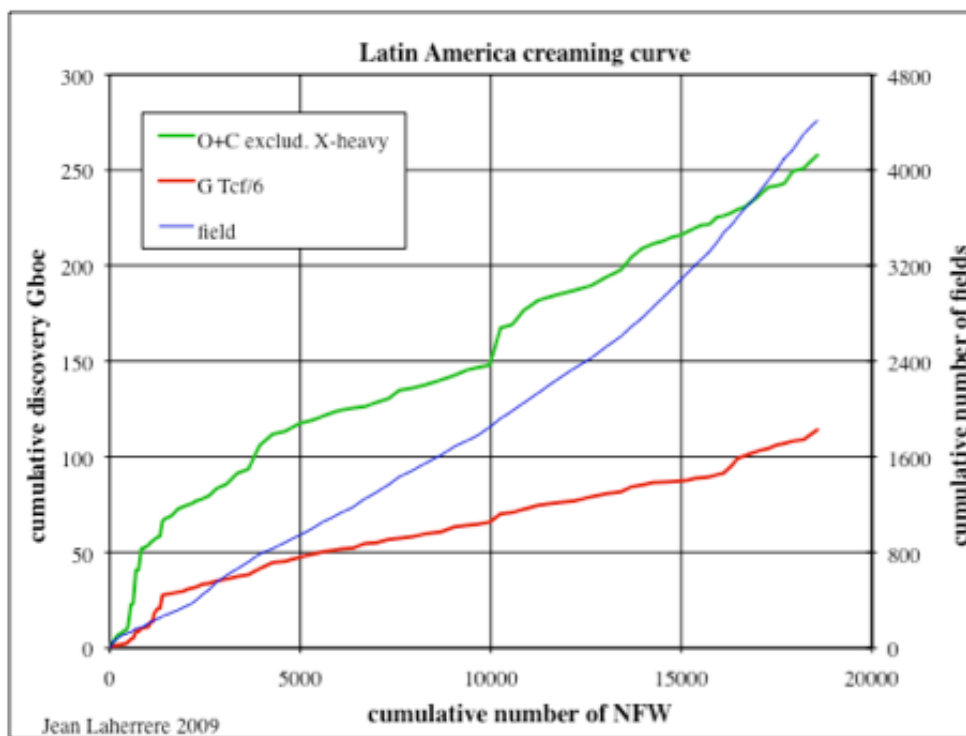


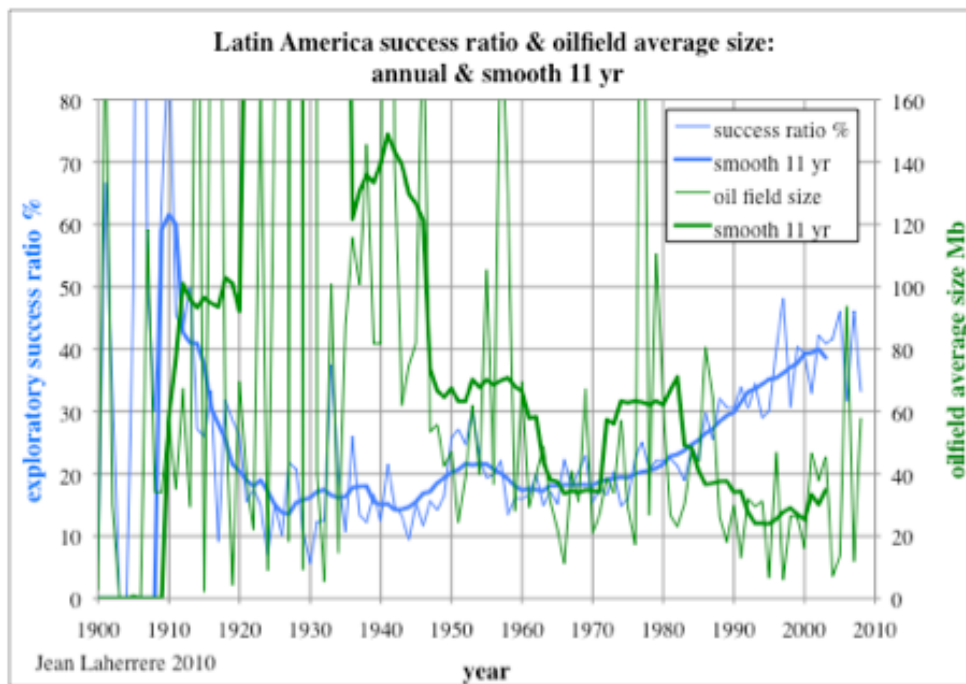


-Latin America

150 Gb of extra-heavy oil were discovered in the 1930s. They have been excluded.



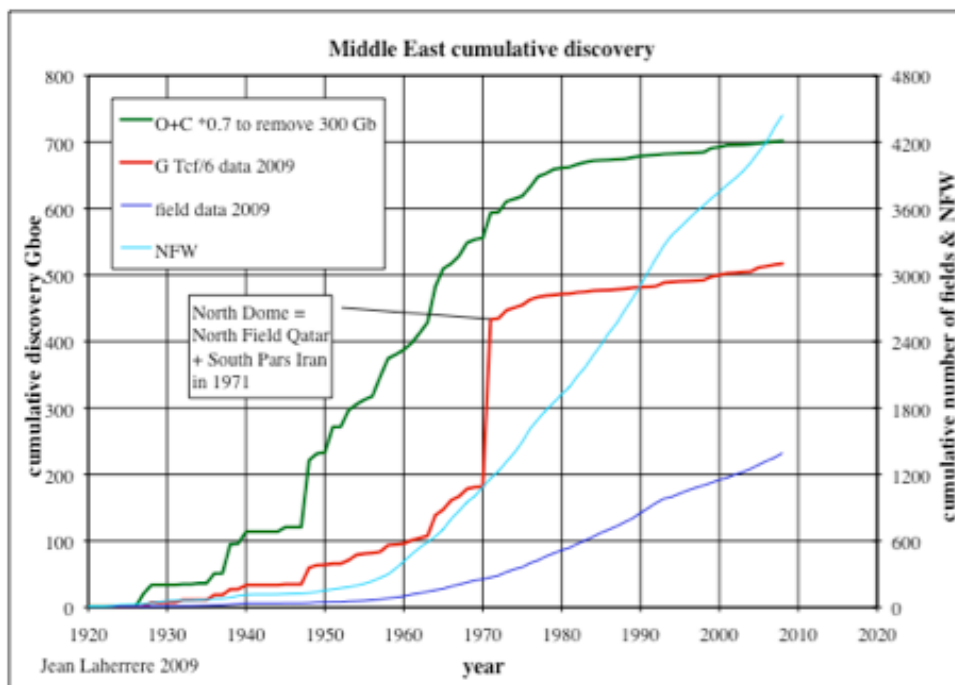


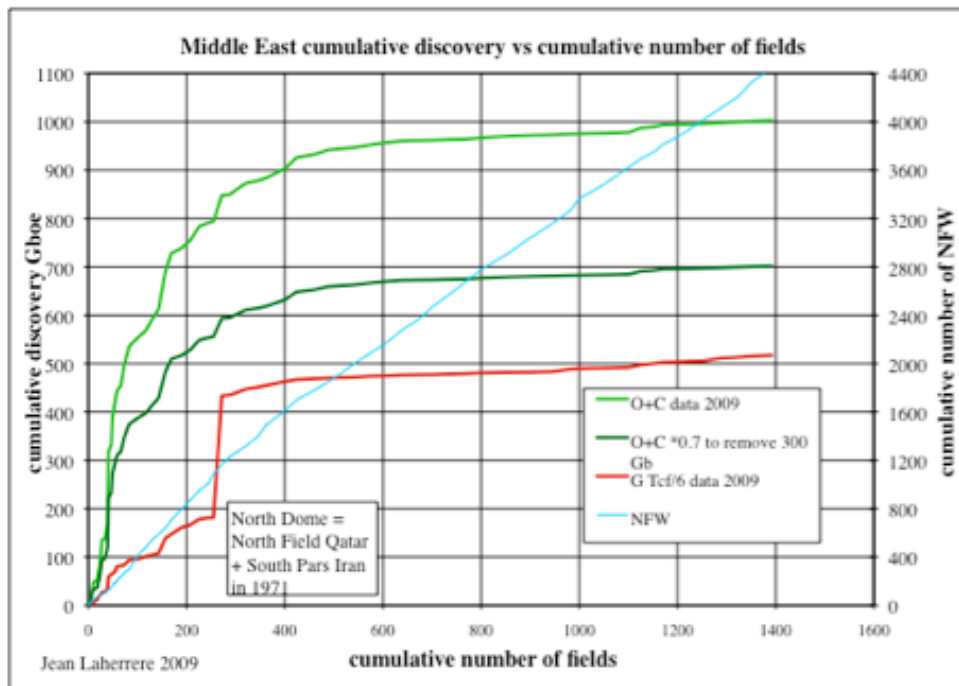
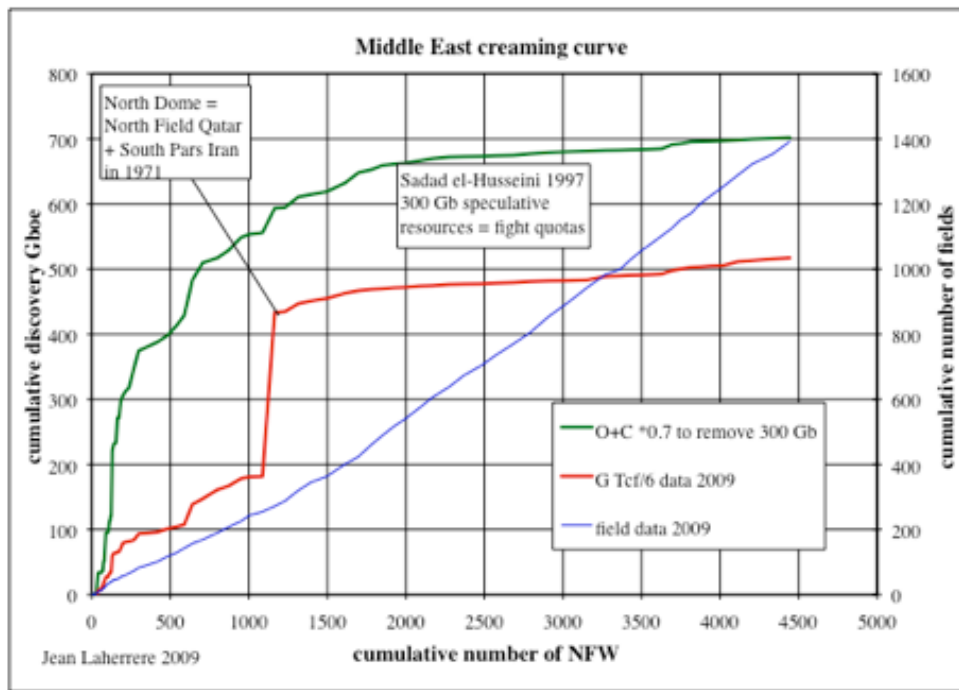


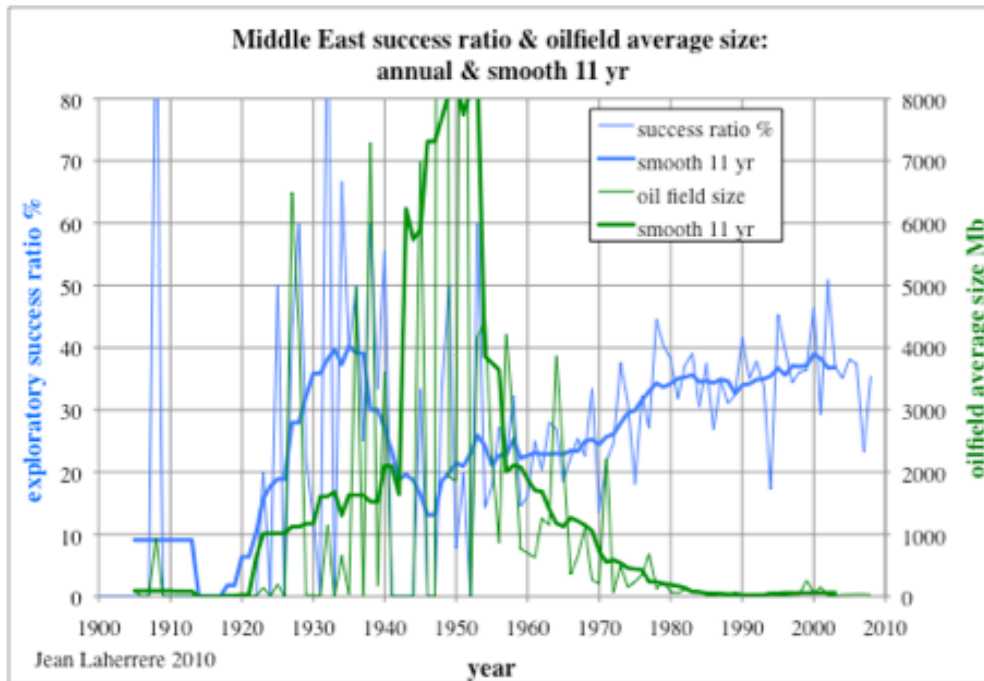
-Middle East

The OPEC members have added 300 Gb from 1985 to 1989 on their so-called proved reserves in their fight for quotas

These 300 Gb has been described by Sadad al-Husseini (former VP Aramco) as speculative resources and they have been removed from ME oil discovery to obtain 2P reserves by multiplying by 0.7

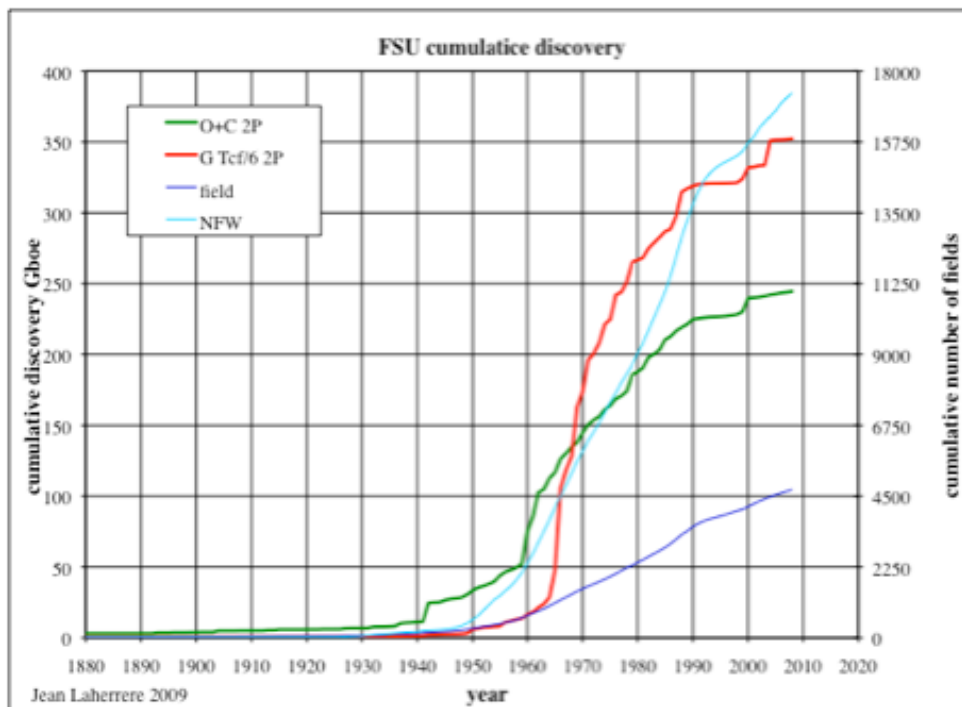


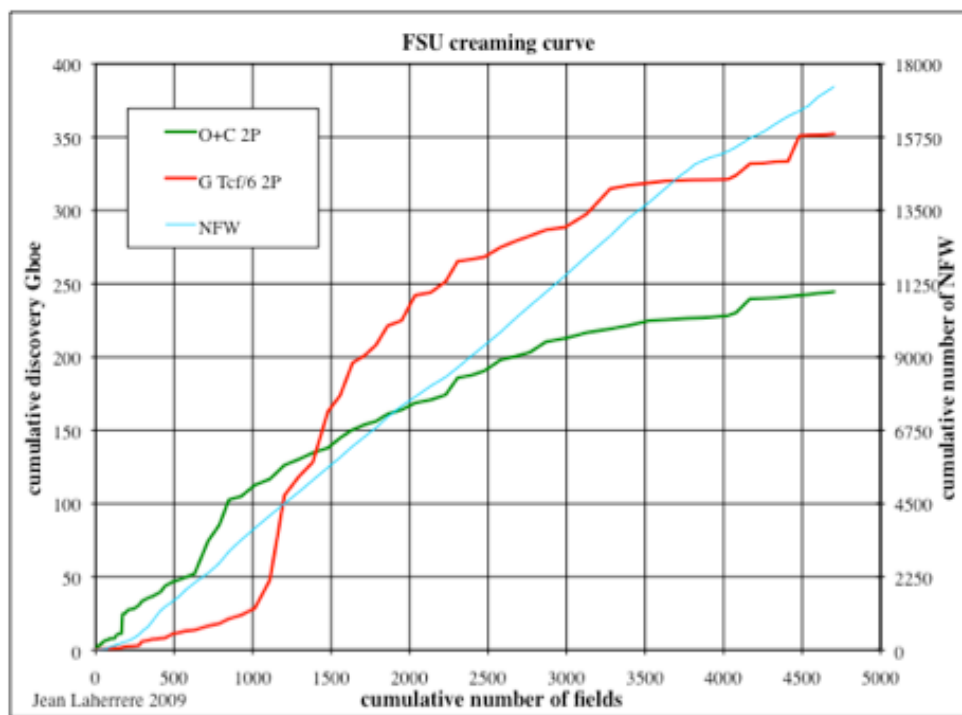
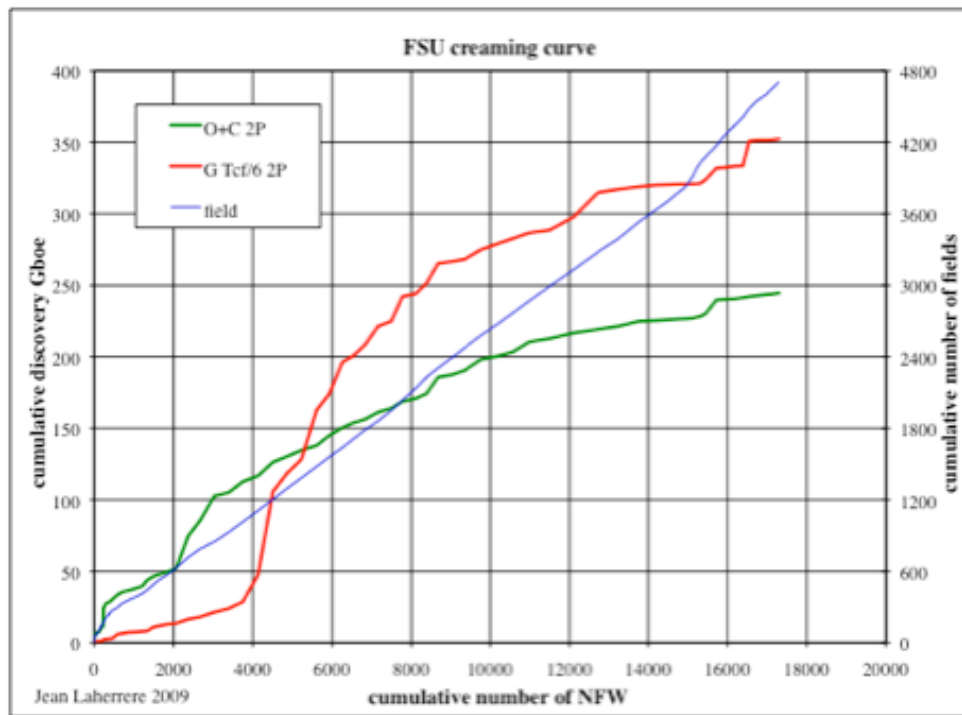


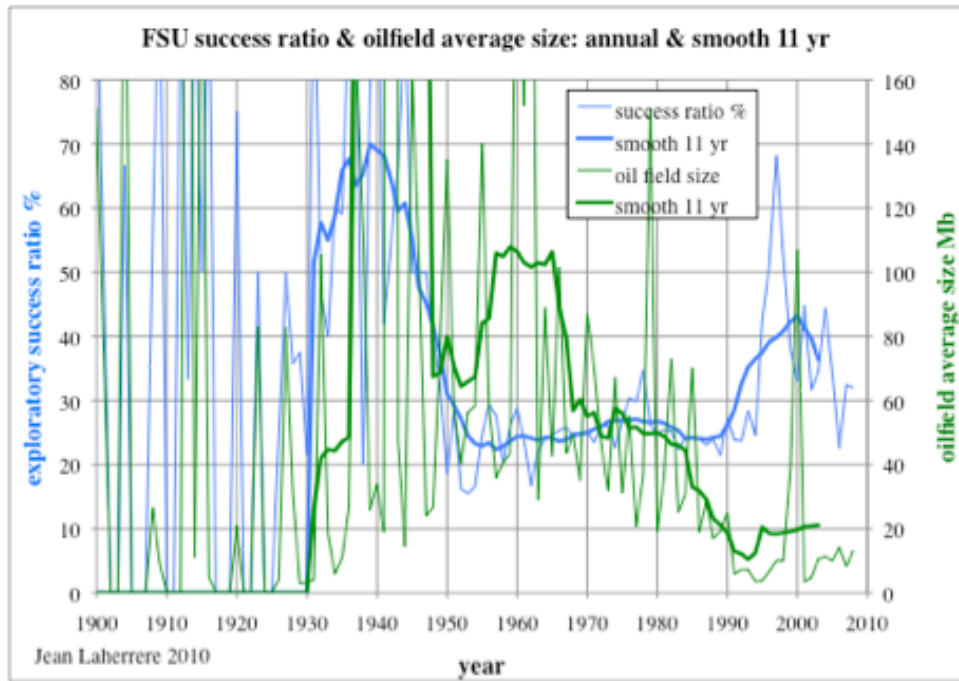


-FSU

FSU reserves are reported as ABC1 following an obsolete Russian classification. The comparison of ABC1 with the ultimate if some giants oil decline and the audit by western companies of Gazprom indicates that FSU ABC1 estimates represent 3P and should be multiplied by 0.7 to get 2P values.



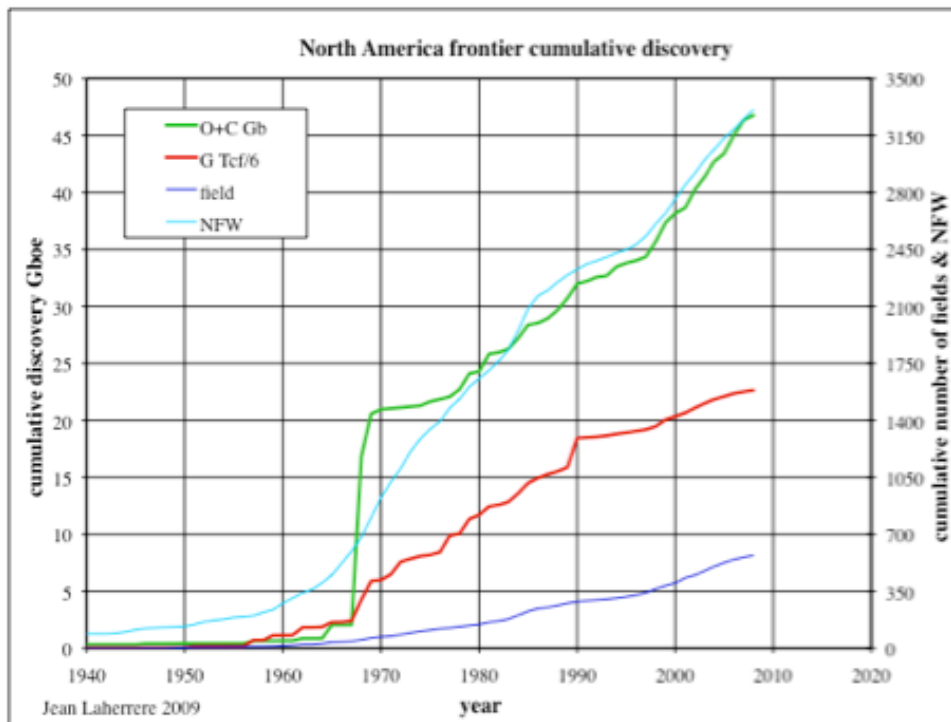


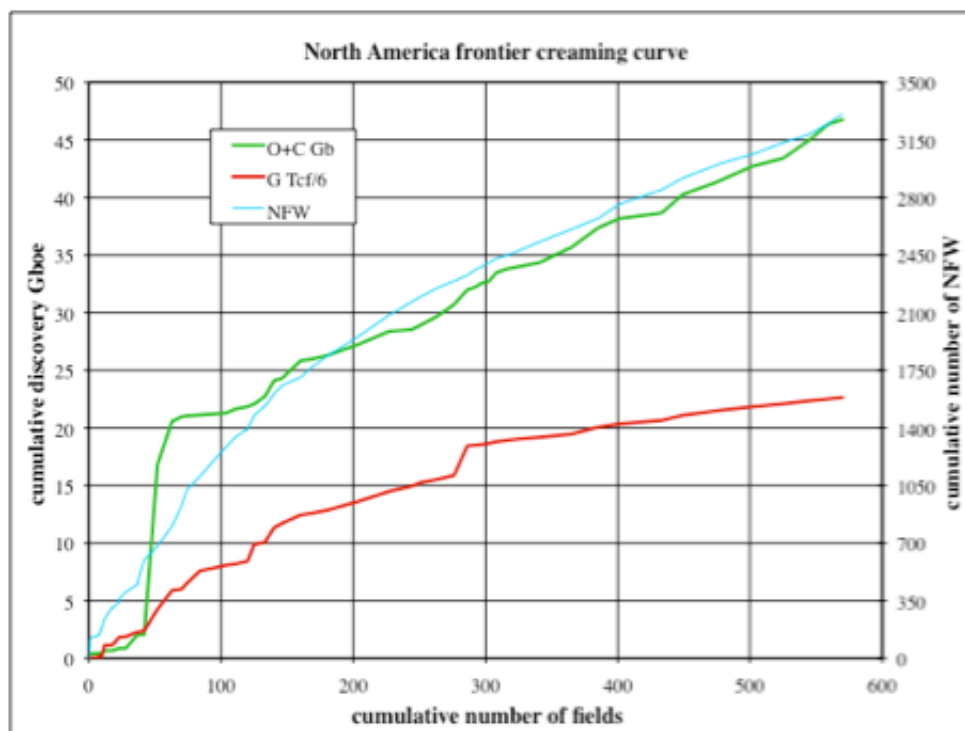
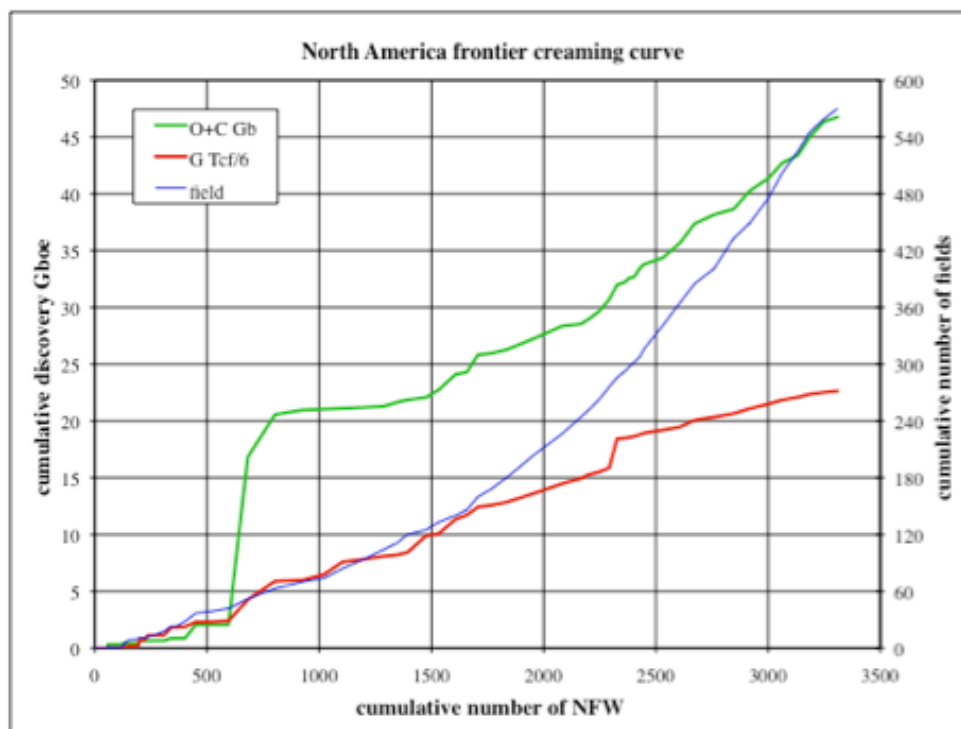


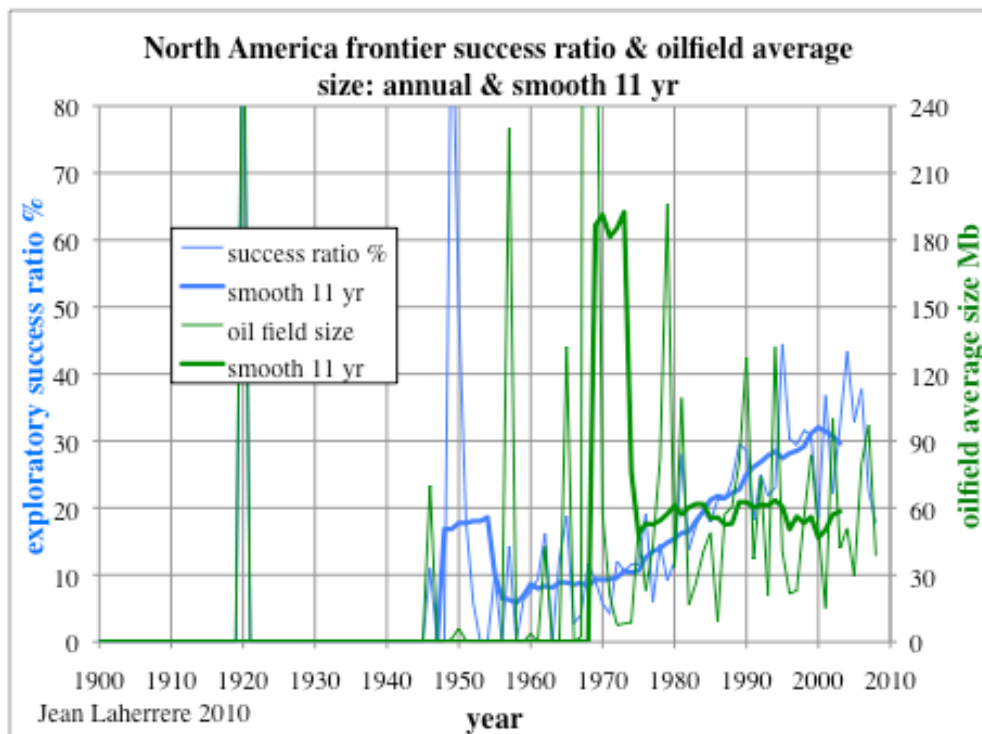
-North America frontier

US and Canada non-frontier corresponds to the USL48 and WCSB (Western Canada Sedimentary Basin) onshore fields.

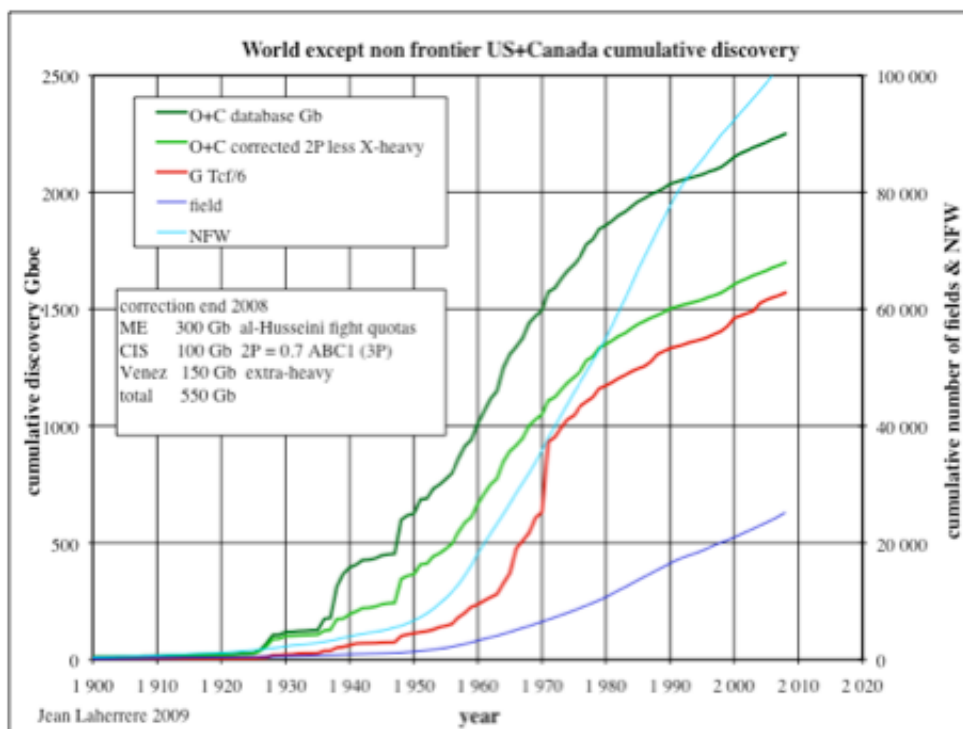
The US & Canada frontier

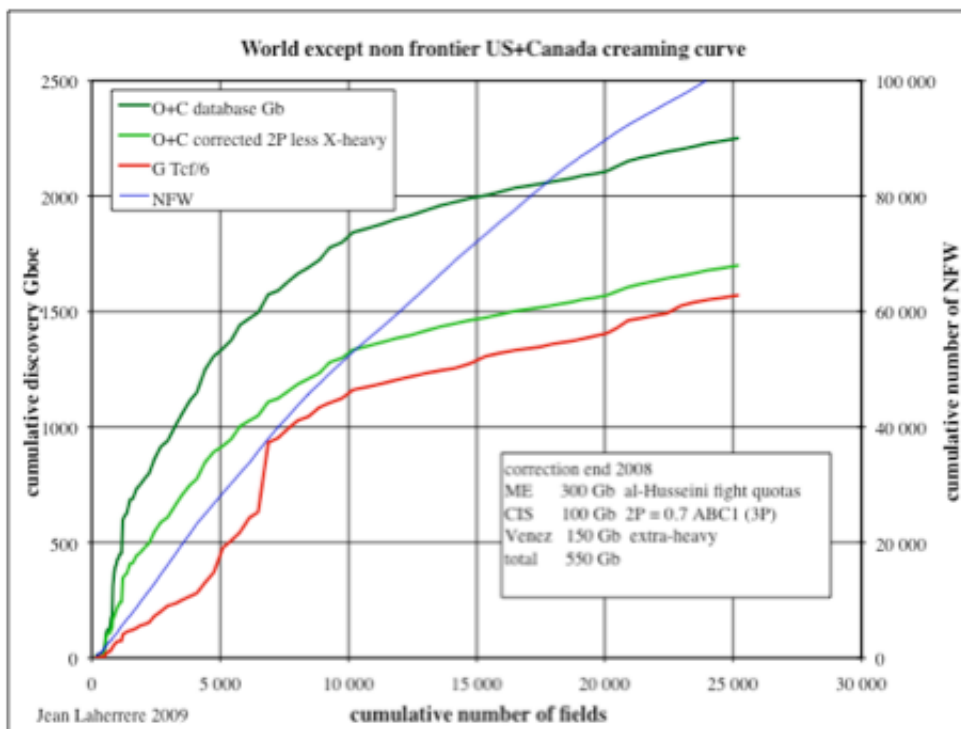
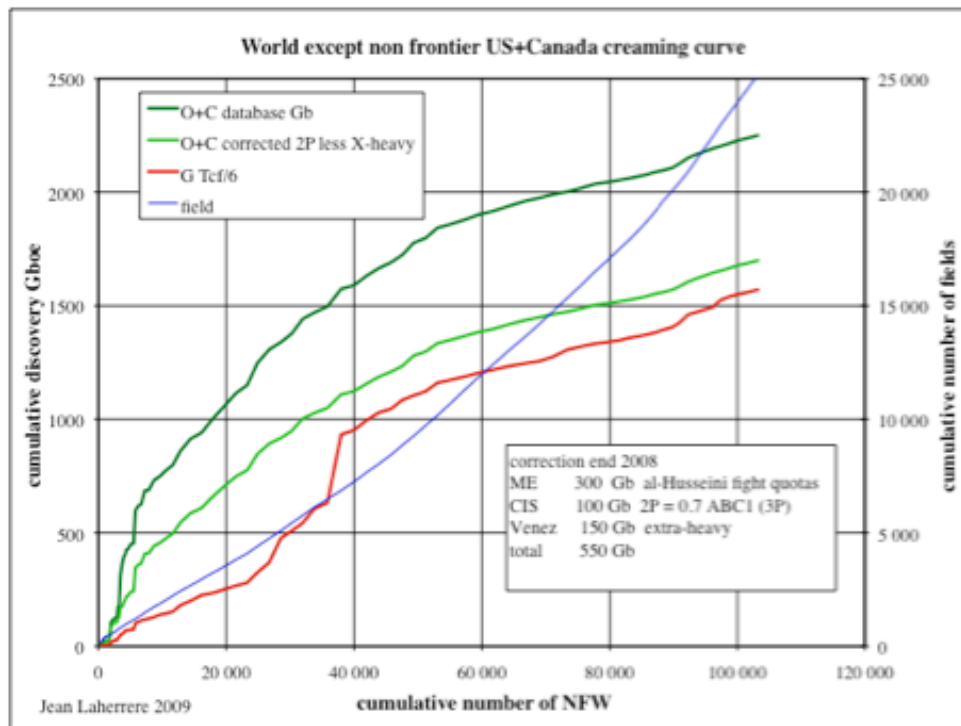


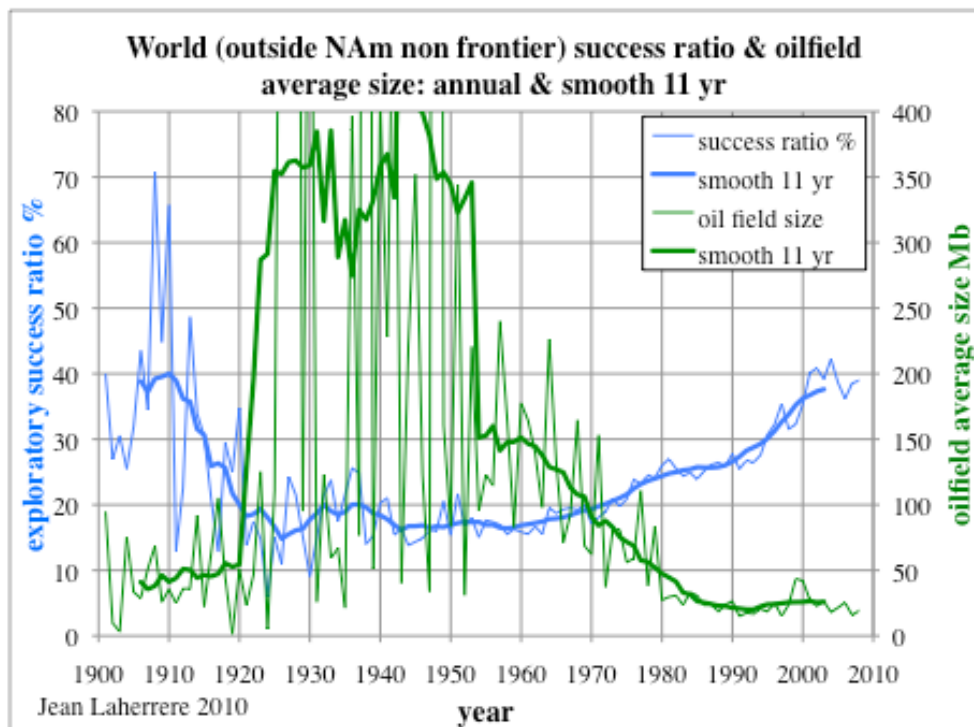




-world outside US+Canada non-frontier



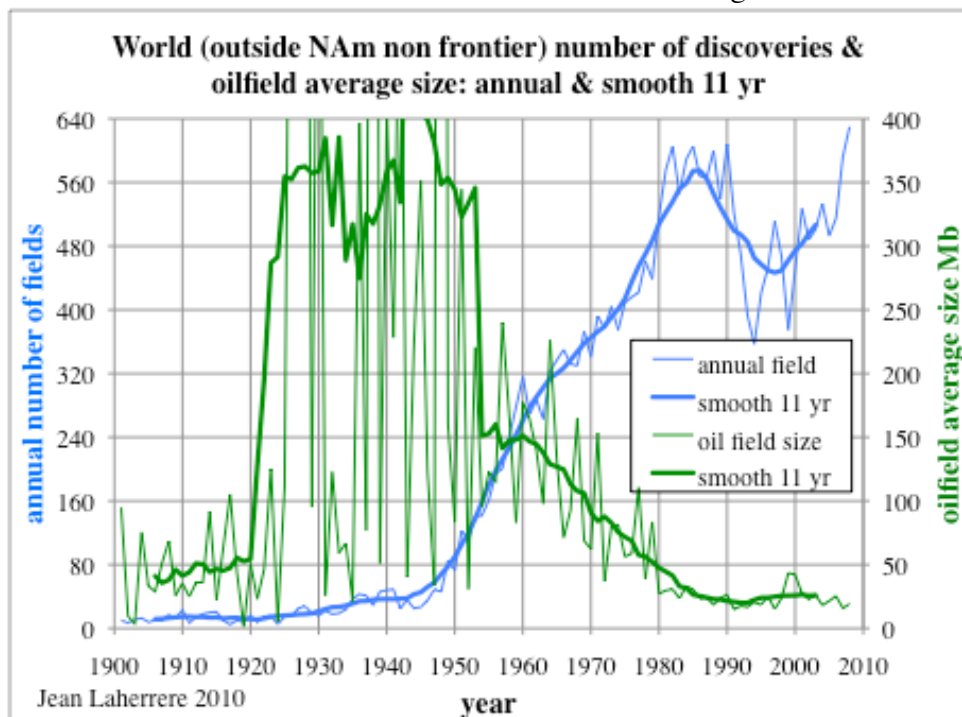




The world (outside US & Canada conventional onshore) displays a success ratio around 40% in 1910, declining to around 17% (one discovery out of 6 NFW) from 1920 to 1970 and rising in 2000 to about 33% (one discovery out of 3 NFW).

But the average oilfield size was about 50 Mb in 1910 and peaked at 350 Mb from 1925 to 1955 to 150 Mb in 1960 and now 20 Mb in 2008

The plot of the number of discoveries together with the oilfield size shows that the drastic increase in discoveries since 1950 coincides with a drastic decline in the average oil field size.



-Conclusions

More and more technical data is polluted by political data, which will be overestimated as long as OPEC quotas will be in force, because scout companies cannot afford to report field estimates in contradiction with NOCs, which are also their clients.

The Russian classification ABC1 close to 3P has also to be reduced to 2P.

The amount of correction is huge for oil conventional cumulative discovery, much more than the estimate of yet to find!

Better reserves definitions are needed as transparency, which should begin by reporting historical annual productions of large fields. Only UK, Norway, California and the former MMS report field annual production.