



# Olkaria I reservoir performance during 27 years of production

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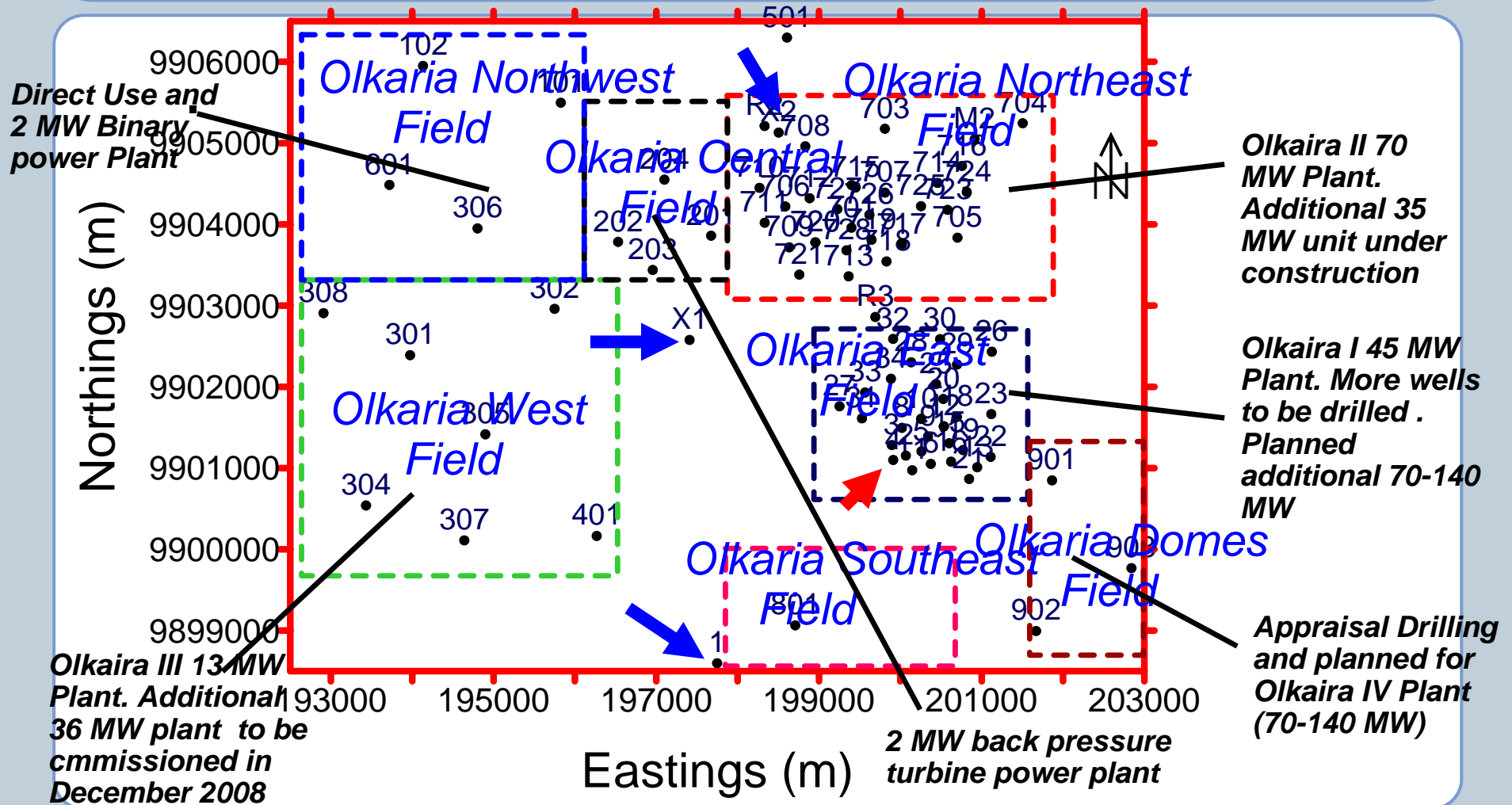
***Cornel O. Ofwona***  
***Olkaria Geothermal Power Project, Kenya***

## Introduction

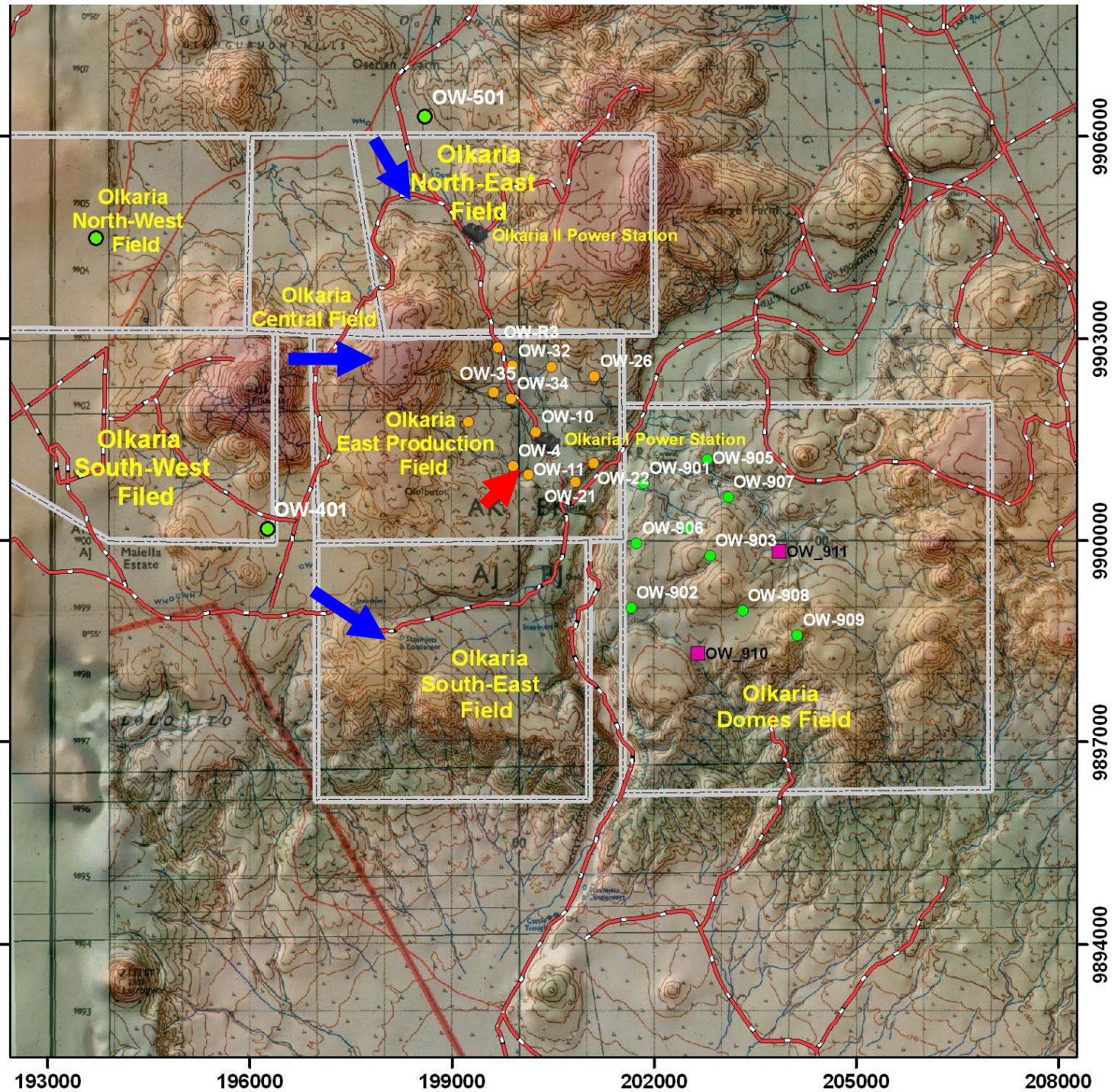
- Olkaria lies within the East African Rift System
- It is a complex volcanic system among other systems dotting the Kenya Rift.
- Has been explored since the 50's and exploited since 1981.
- Current power generation from Olkaria is 130 MWe. Will increase to 166 MWe in December 2008 and expected to triple in the next few years.



# Location of Olkaria Fields and Power Plants









# Olkaria I – 45 MWe (Commissioned 1981)



# Olkaria II – 70 MWe (Commissioned 2003)



# Olkaria III – 13 MWe (Commissioned 2000)





# Well OW-101: Hot water source for Oserian Green House project





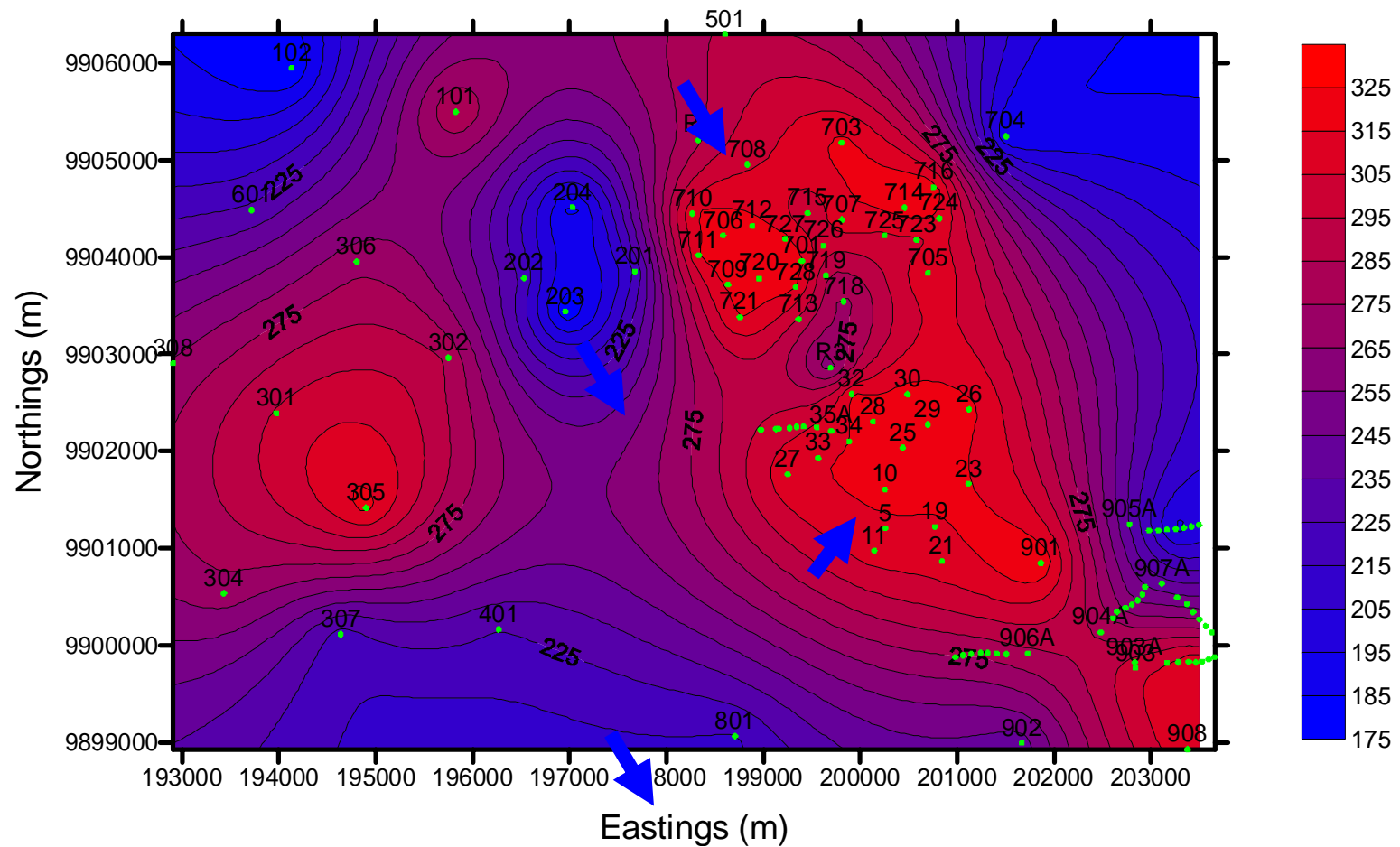
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# Direct Use – Flower farming



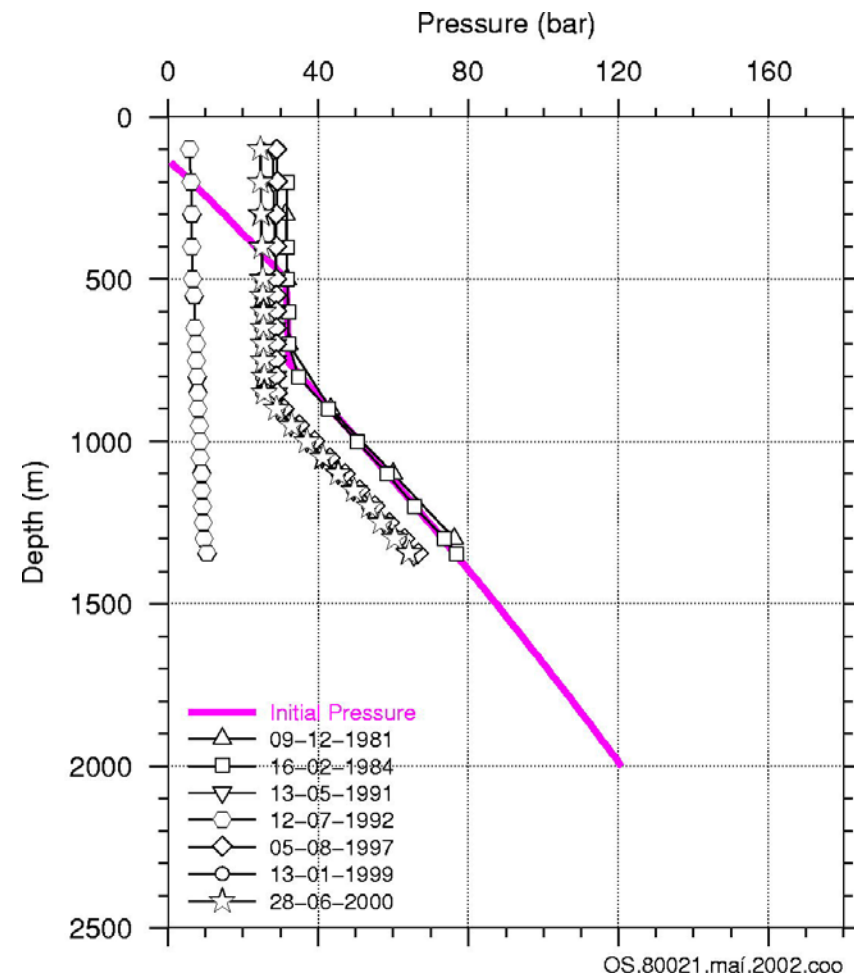
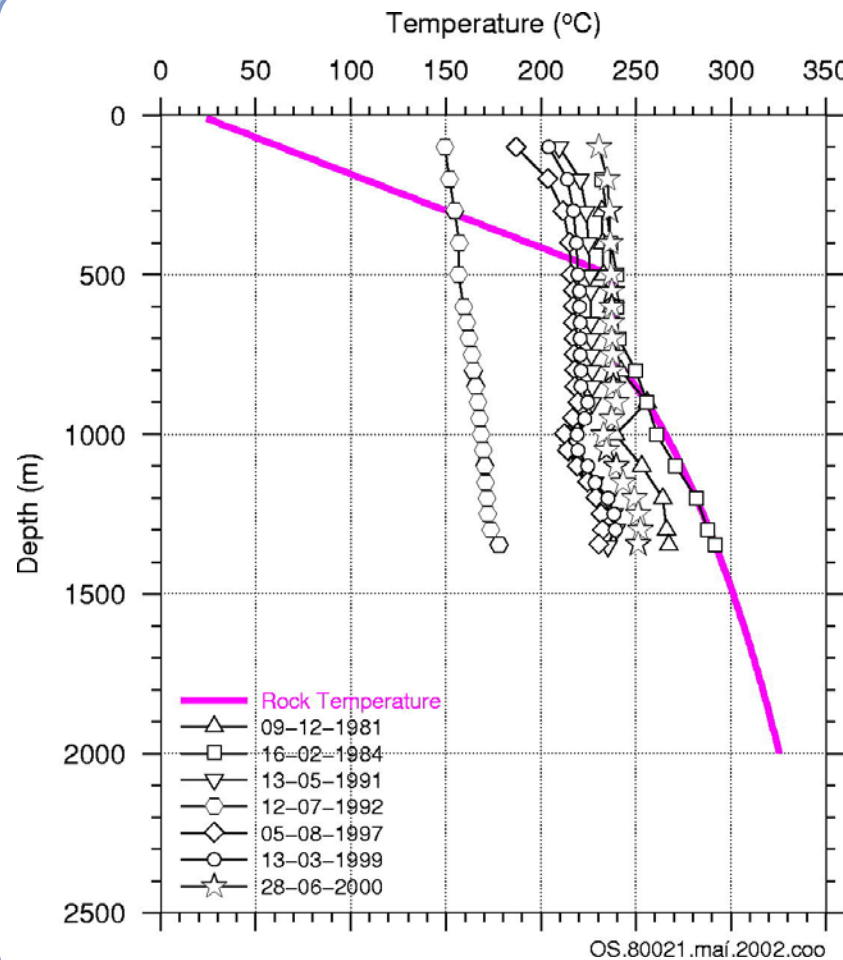


# Temperature distribution at 250 masl

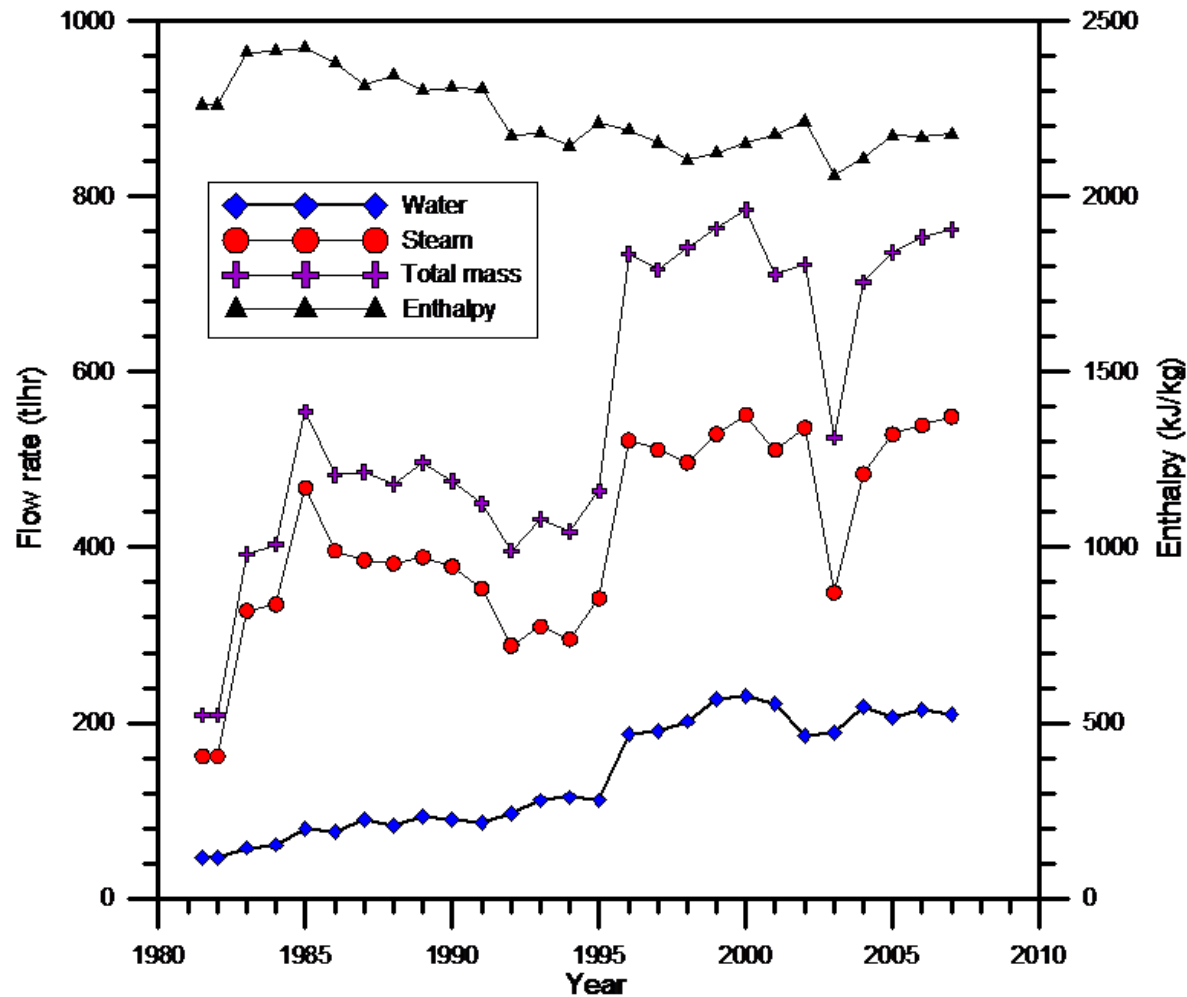




# Typical Olkaria I wells T & P profiles



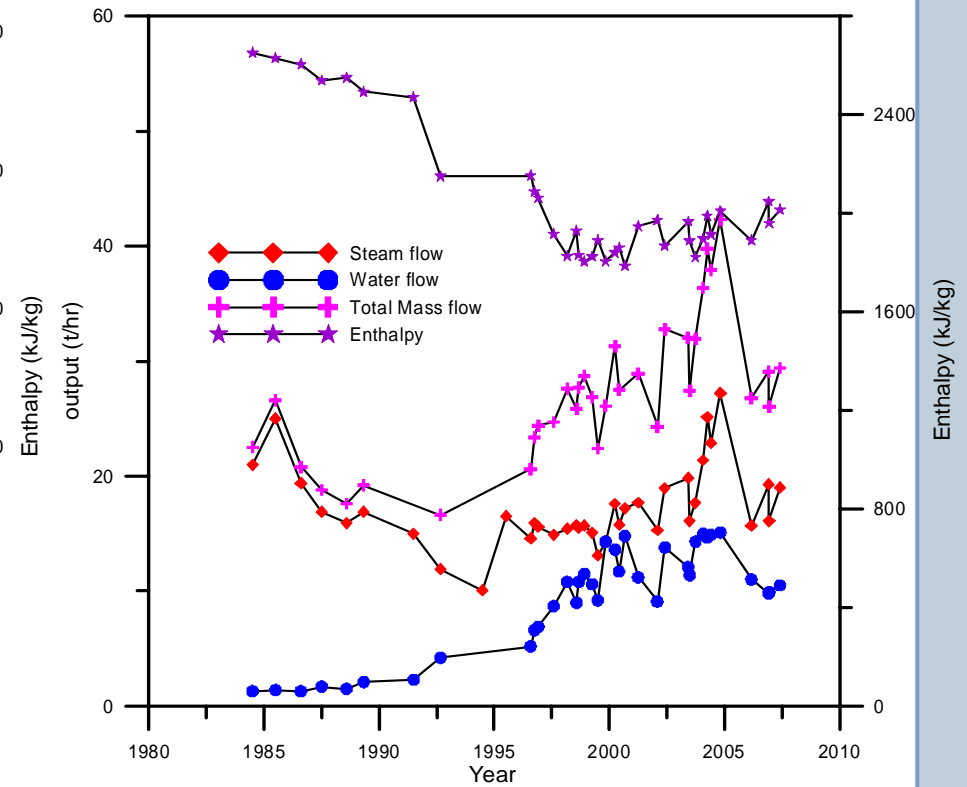
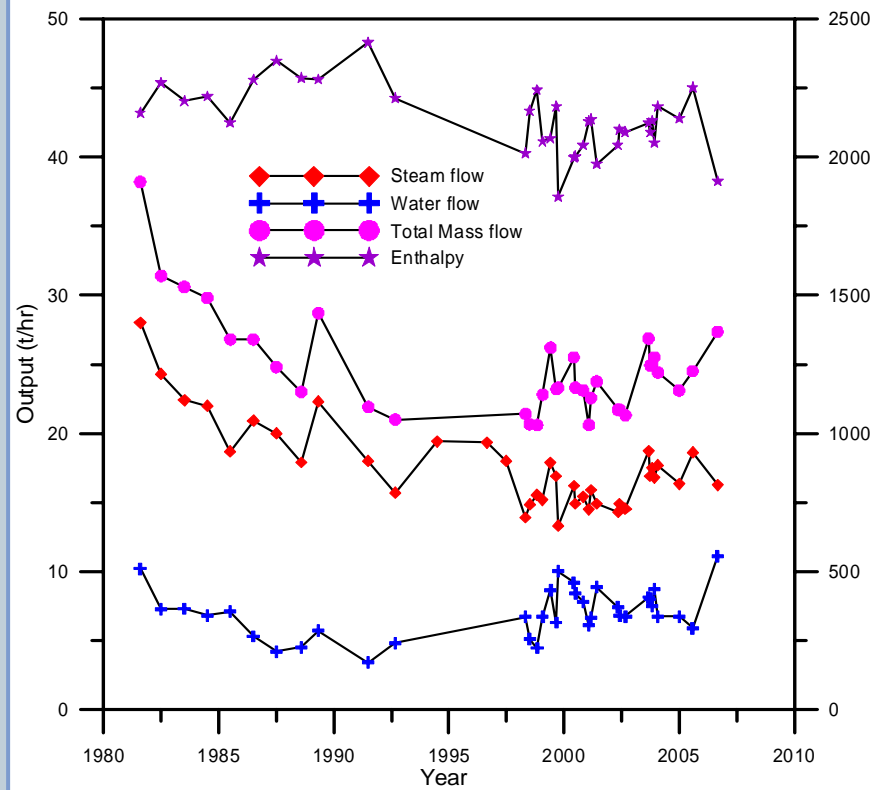
# Overall production history of Olkaria I





# Well production histories KenGen

## ● Production histories of OW-2 and OW-19

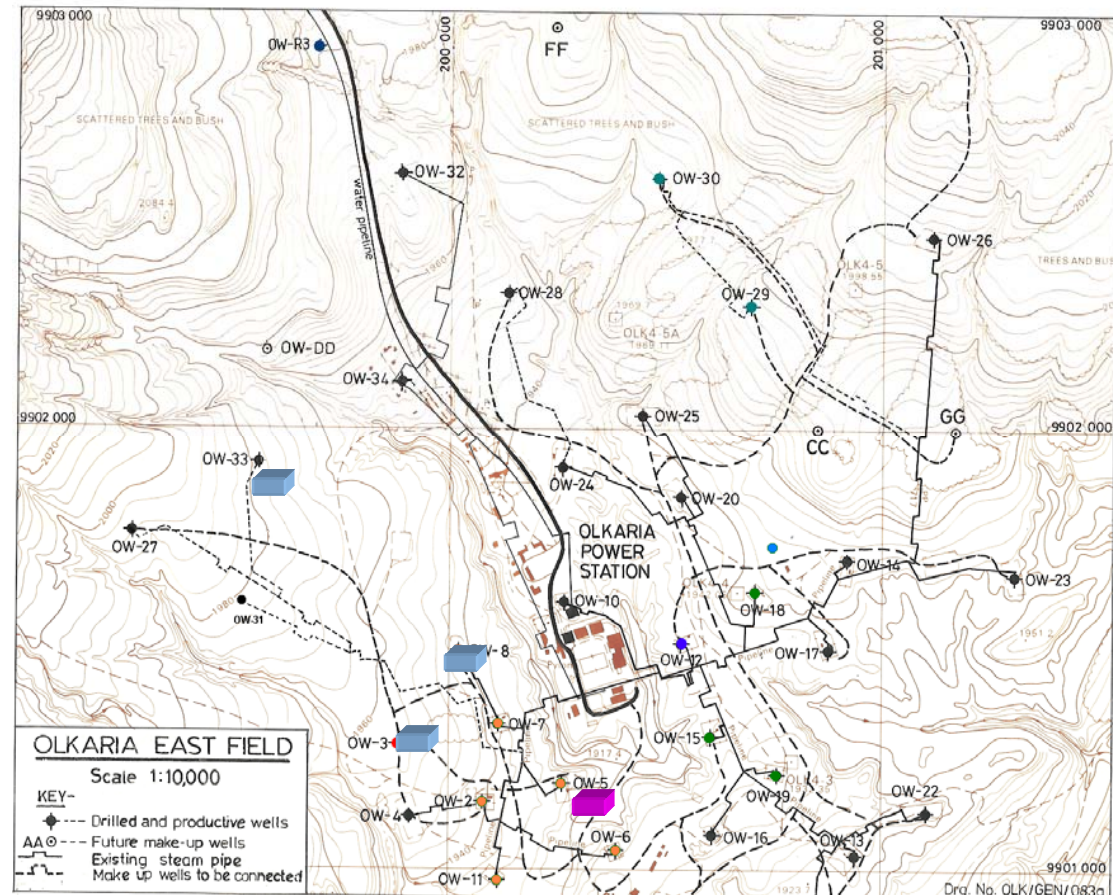
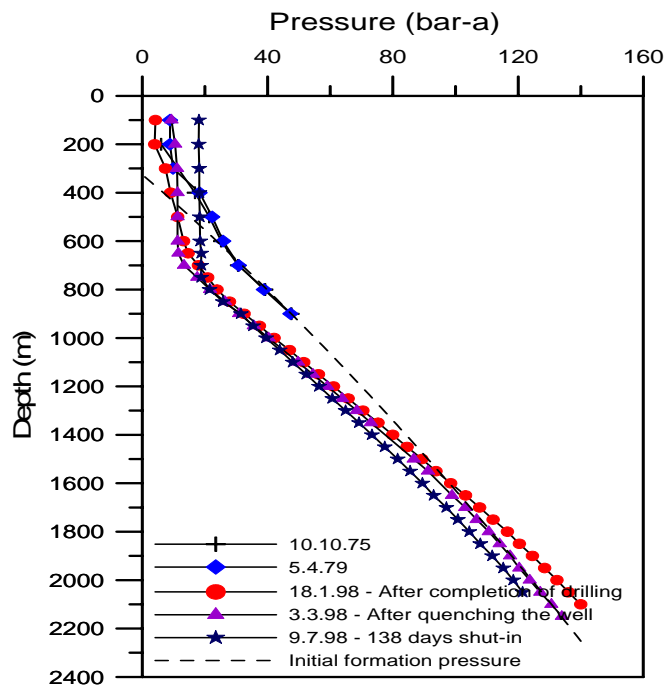




# Olkaria I Wells



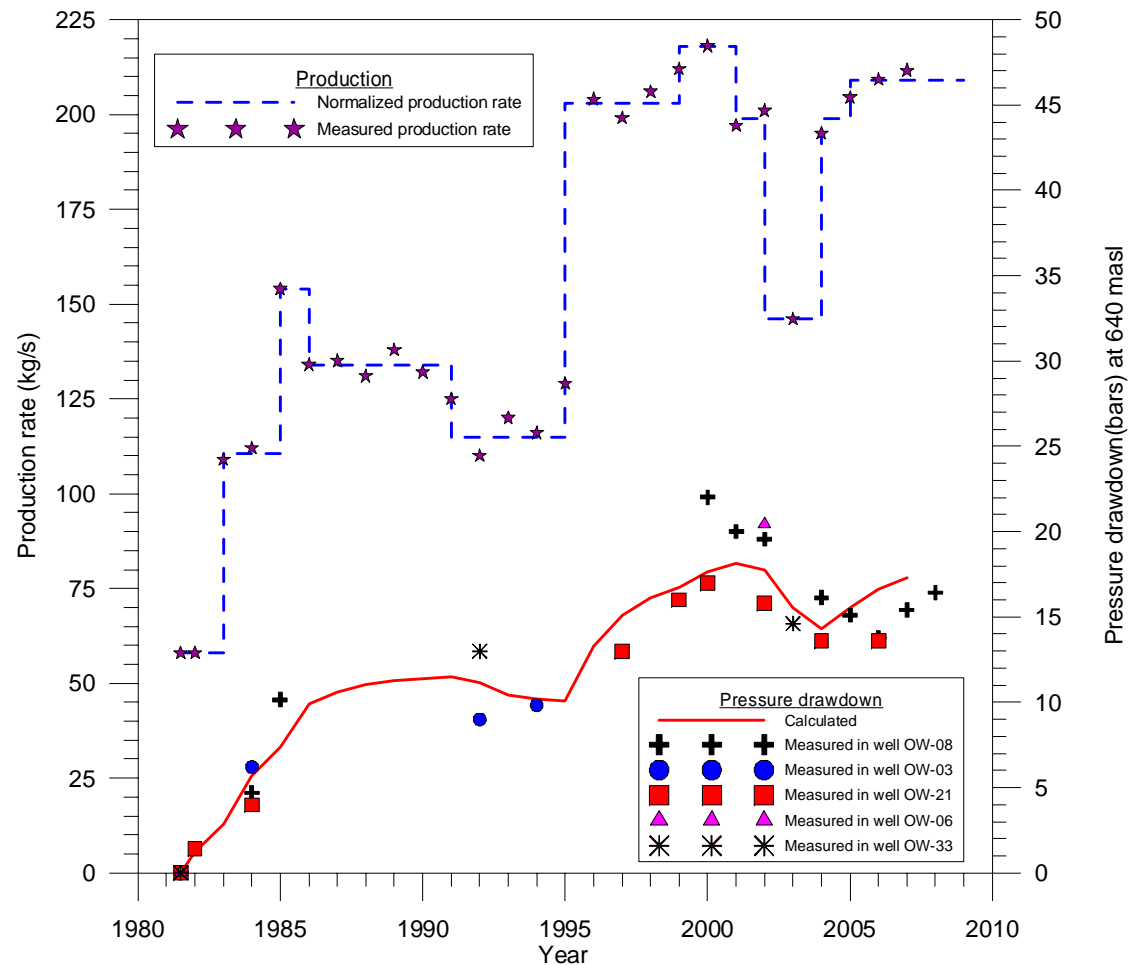
Well OW-5





# Pressure drawdown in Olkaria | KenGen

- Time constant = 2 yrs
- Recharge coefficient = 116 kg/MPa.s



# Chemical changes due to production



- No major changes in fluid chemistry that is large enough to merit particular or unique interest has occurred.

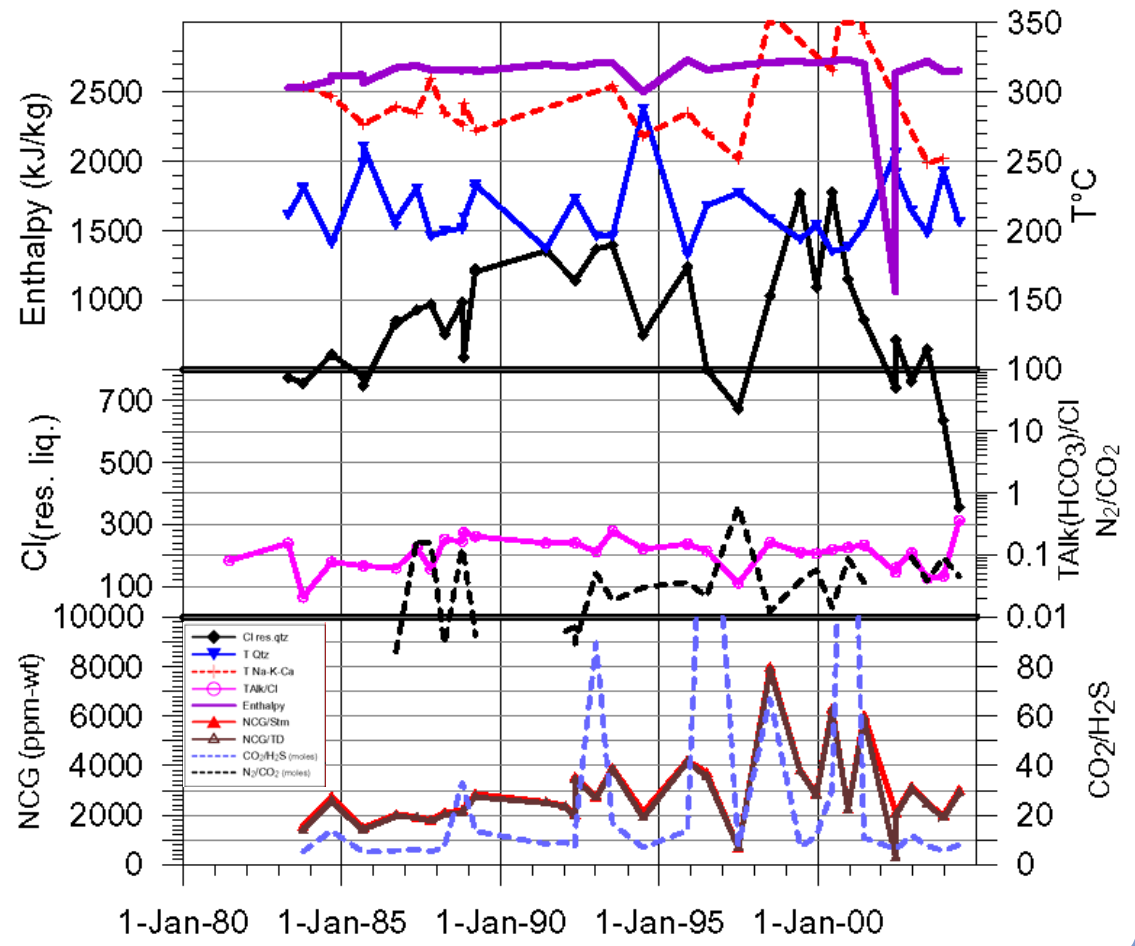




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# Chemistry of well OW-18

- Cl increased over time due to boiling
- Increase in gases also due to boiling



## Conclusions

- Minimal change has occurred in the last 27 years.
- Low pressure drawdown has been experienced and the chemistry is good.
- The field has possibly reached steady state conditions, under the current production rate.
- No cold incursion has been observed.
- This has been a good case of sustainable use of geothermal resource.



**THANKS FOR YOUR  
ATTENTION**

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# Blowing Geothermal Well

