



Ziltek

Measure · Monitor · Manage



Ziltek History

- Founded in 2008
- Located in Adelaide
- Commercialised CSIRO IP
 - Measurement of total petroleum hydrocarbons (TPH) in soil with mid Infrared spectroscopy
- RemScan™ developed as a product + service
 - Handheld MIR spectrometer
 - Field kit
 - Calibration service
 - Training & Support
- RemScan is now instrumental in many remediation projects around the world



Market Traction



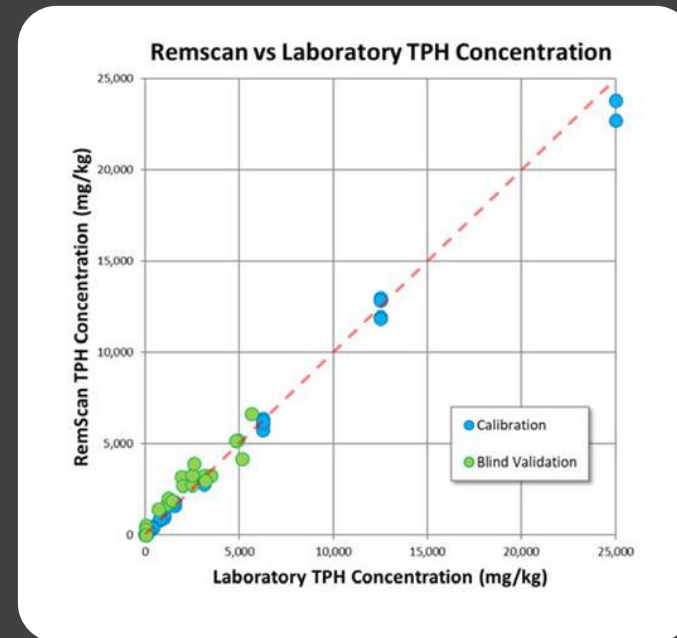
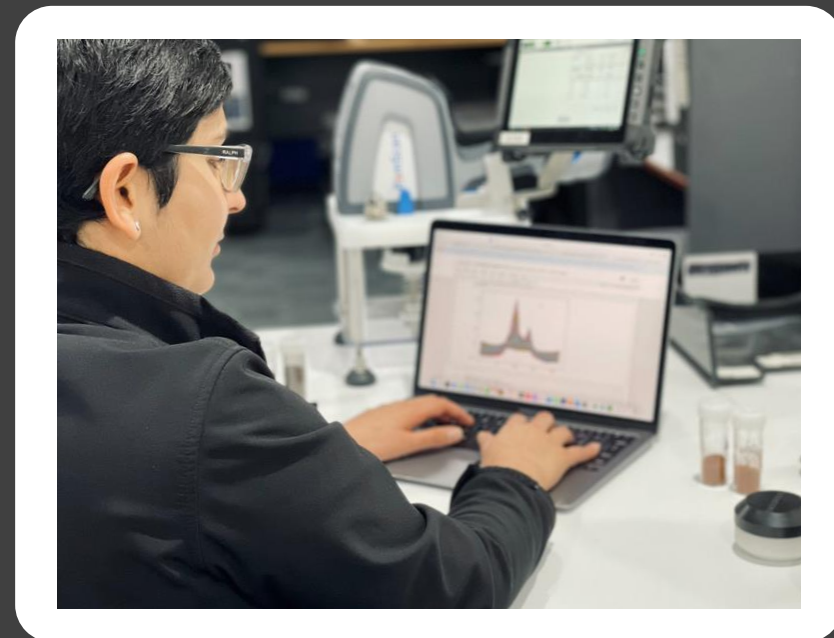
- Over 76 units deployed globally
- Broad customer base:
 - Oil & Gas
 - Mining
 - Enviro/waste
 - Government
 - Universities
- Integral on major remediation projects:
 - Niger delta
 - Sumatran oil fields
 - Kuwaiti oil fields
- Field tested in almost every environment imaginable
 - Tropics, desert, metropolitan, rural, coastal, arctic and Antarctic

Contaminated Soil Remediation

- Remediation usage scenarios
 - Site assessment & characterisation
 - Mapping
 - Spill delineation
 - Excavation chasing
 - Remediation baselines
 - Remediation monitoring
 - Emergency spill response
- New remediation products
 - Spill response mode
 - Threshold detection mode



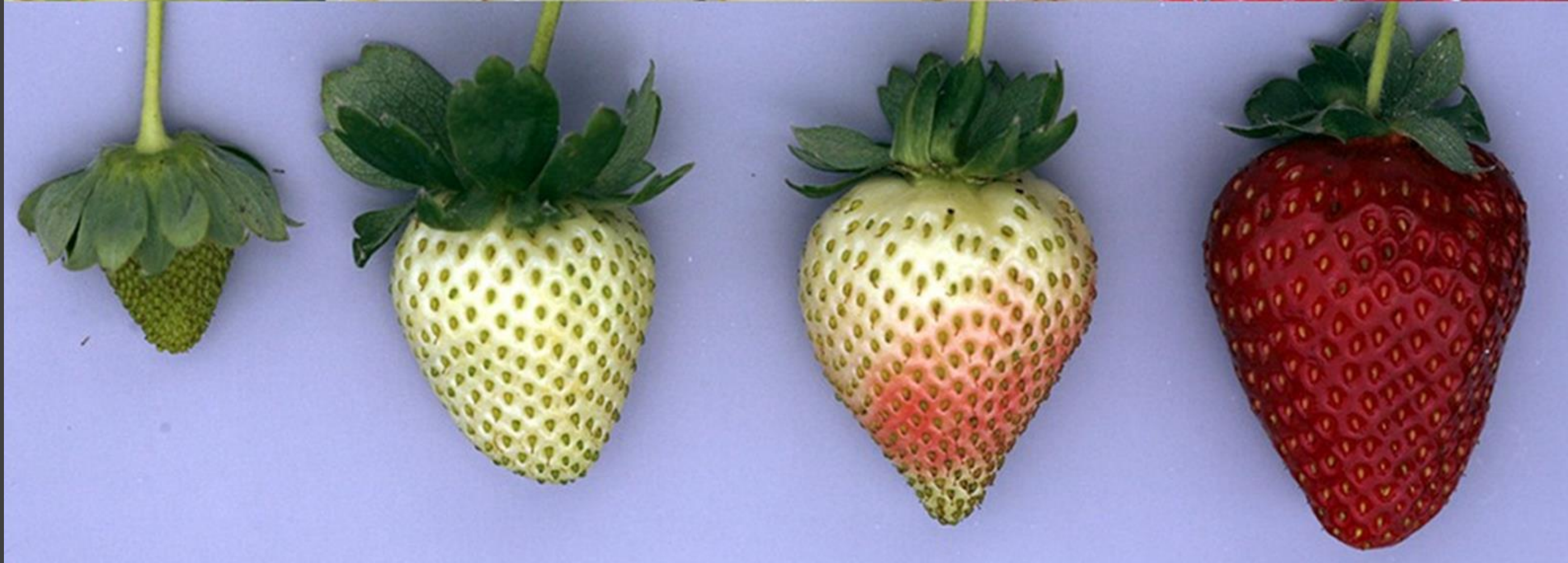
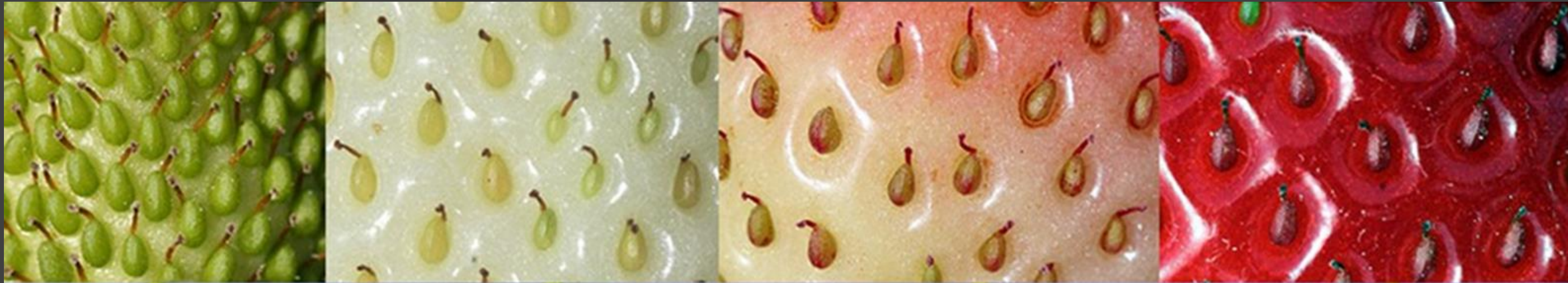
More Than Just a Device

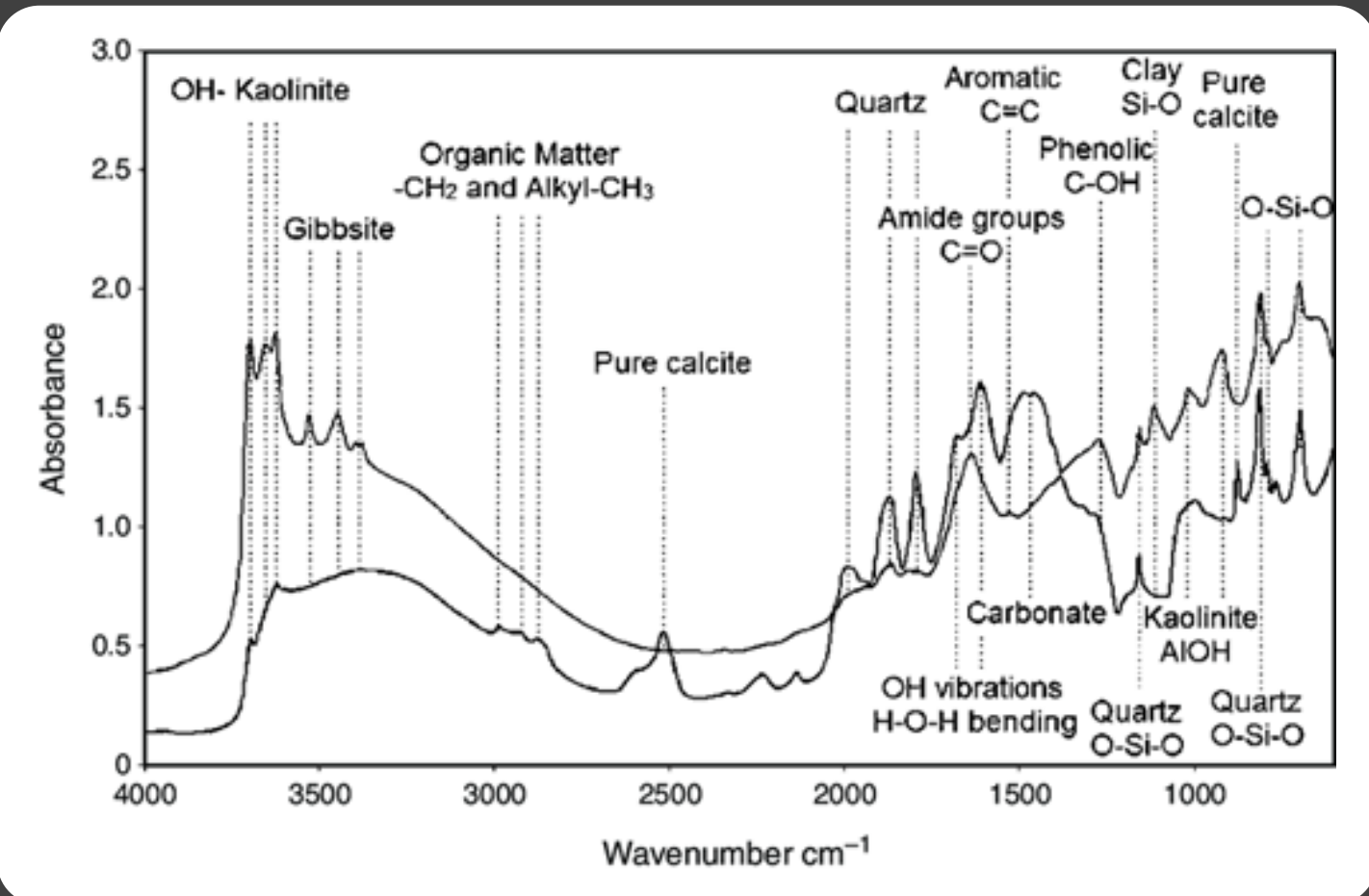


- Software
 - Shaped by user feedback
 - User friendly
 - GPS logging
 - Ancillary soil information
 - Texture
 - Water content
 - Secure / auditable database
- Field accessories
 - Sample prep
 - Sample drying
 - Charging / power
 - Rugged transport cases
- Customer support
 - Calibration services
 - Training
 - Instrument servicing
 - Custom applications

Calibration:

Correlating "colour" with properties





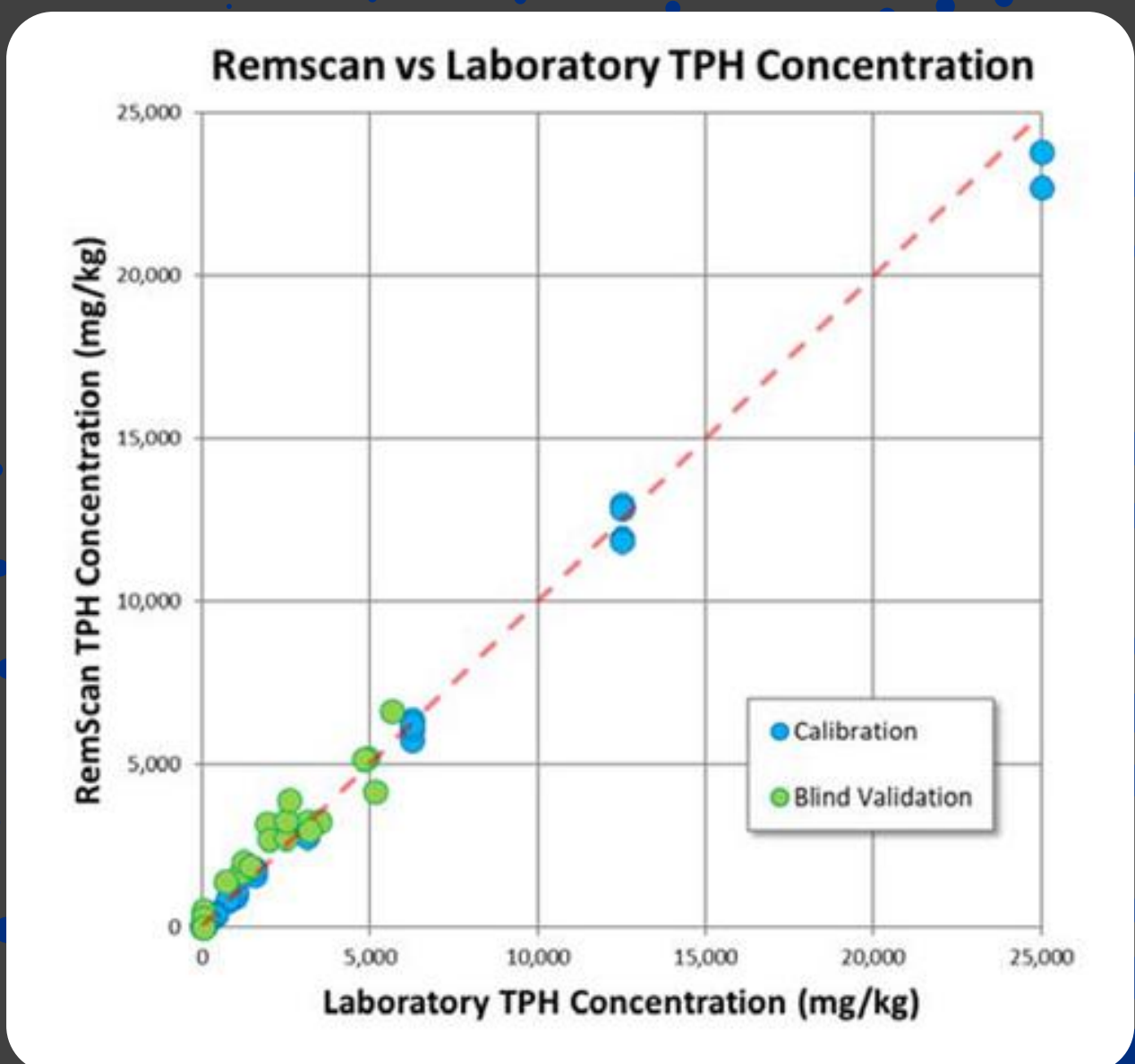
+

Handwritten mathematical formulas including:

$$\ln(f(x)) = \ln\left(\frac{1}{\sum (x_i - \bar{x})^2 + n(\bar{x} - \mu_0)^2}\right) - \frac{1}{2} \ln(2\pi)$$

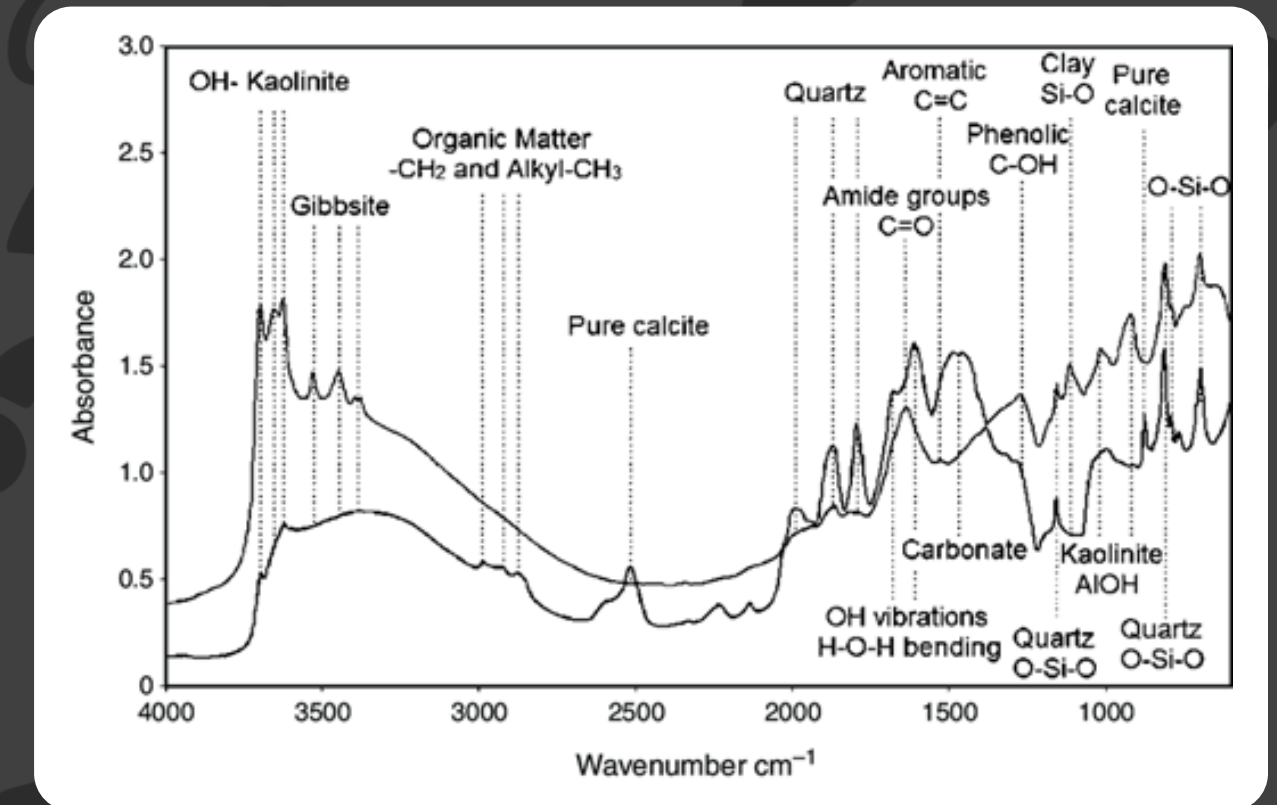
$$\ln(f(x)) = \ln\left(\frac{1}{\sum (x_i - \bar{x})^2}\right) - \ln(n)$$

$$\ln(f(x)) = \ln\left(\frac{1}{n}\right) - \ln\left(\frac{1}{\sum (x_i - \bar{x})^2}\right) - \ln(n)$$



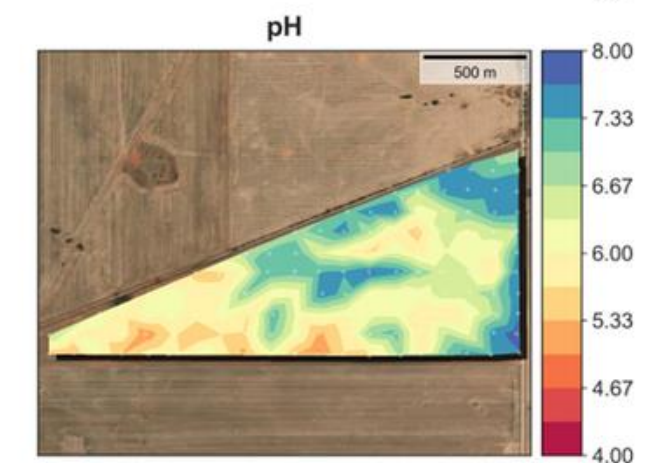
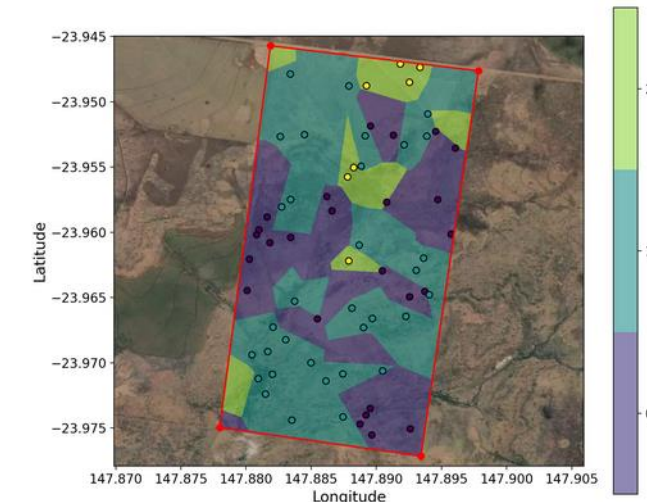
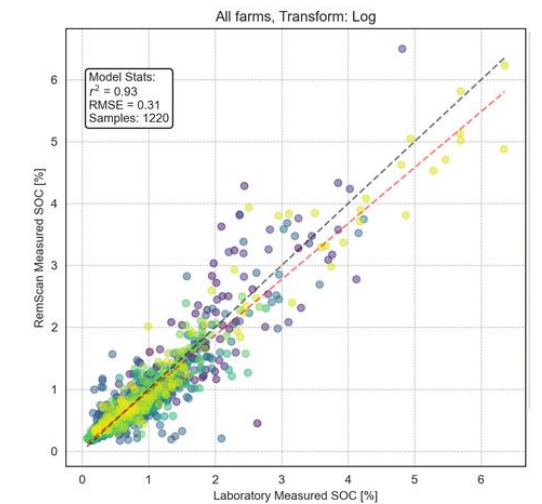
Beyond Remediation

- RemScan is a platform technology
 - Chemical fingerprints of materials
 - Many uses beyond oil in soil
- Core Ziltek skills:
 - Data science
 - Calibration method development
 - Bespoke measurement solutions
 - Customer service
- Searching for measurement problems to solve:
 - High laboratory costs?
 - Insufficient data?
 - Logistical overheads?
 - Operational continuity?
 - Portability?
 - Remote deployment?



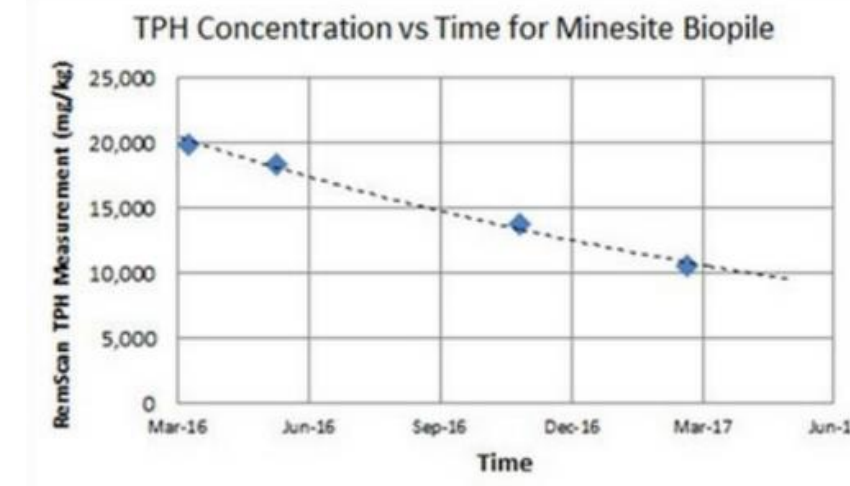
RemScan: Agriculture

- Calibrations developed for:
 - Soil texture
 - Organic carbon
 - Inorganic carbon
 - pH
 - and more in the pipeline
- Applications
 - SOC Pre-baseline surveys
 - Data layers for optimised stratification
 - SOC Baseline measurement
 - Lowering lab costs
 - Increasing sampling density
 - Lowering measurement uncertainty
 - Precision Ag.
 - Map multiple properties simultaneously
 - Spot checks and comparative studies



RemScan: Mining

- Market ready applications
 - Remediation
 - Emergency oil spill response
 - Oil contaminated land management
 - Bioremediation monitoring
 - Soil Health
 - Land rejuvenation
- Applications under development for:
 - Mineral Identification (e.g. Lithium)
 - Coal ash quantification
 - Explosive coal dust monitoring
- Bring us your measurement challenges!





Reach out if you have measurement based problems

Thank you

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