

Advanced Freight Train Simulation

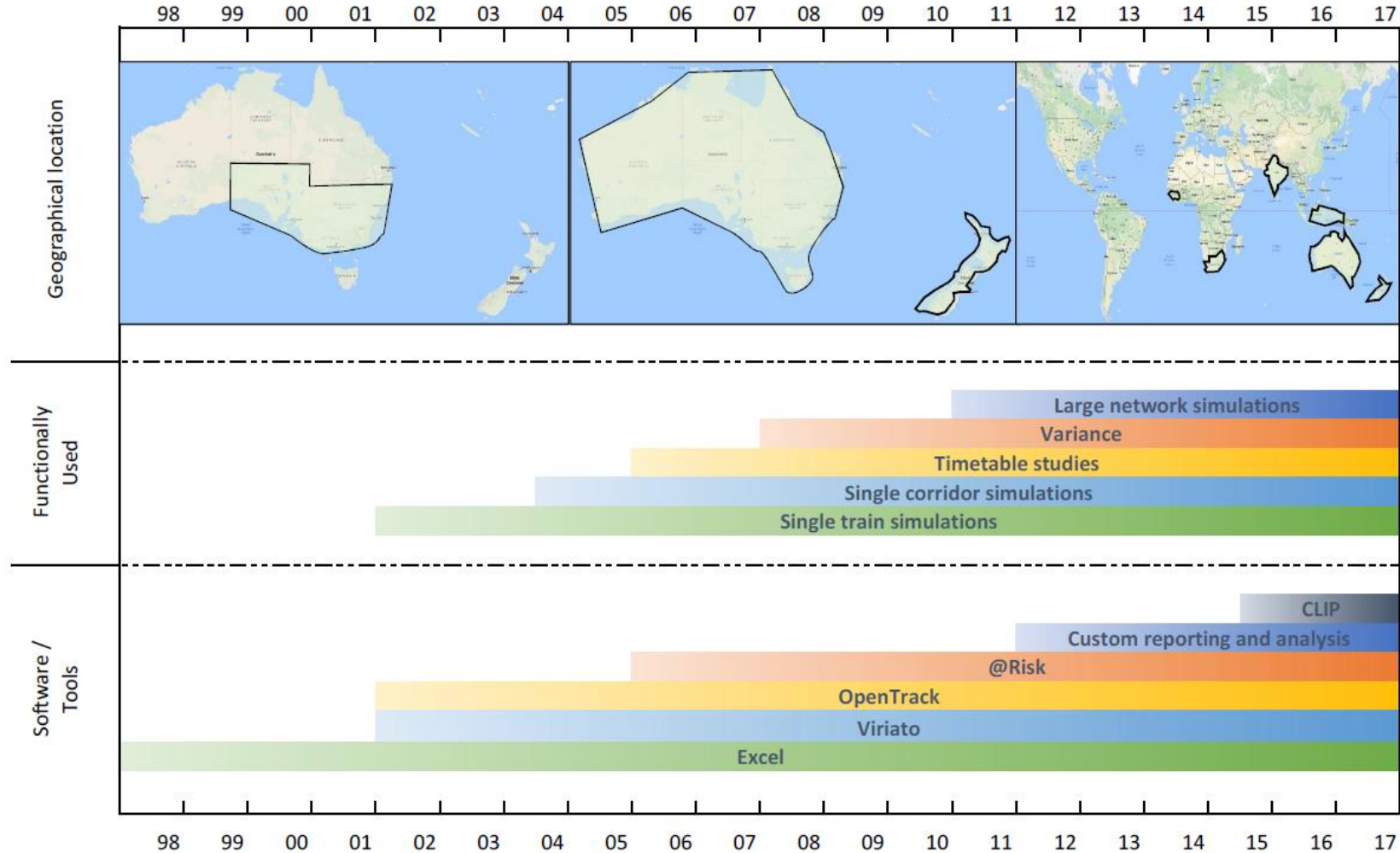
OpenTrack User Group – 8 September 2017





Plateway - Introduction

20 years of Plateway Modelling and Simulation



Plateway's modelling history (images from Google maps)



So why single train runs in OpenTrack?

- OpenTrack's single train simulation capability is very detailed for a 'network simulator' allowing the input of many train parameters
- Including the ability to adjust the acceleration and velocity to a percentage of the achievable value (The actual driver's performance)

Attribute	OpenTrack	"Specialist" single train simulator
Driving Style	Input	Output
Airbrake Performance	Input	Output
In train forces	Input	Output
Overall Braking Strategy	Input	Output
Line Speed Limits	Input	Input
Track alignment	Input	Input



Recent Improvements

- Lowering of acceleration and braking thresholds to more accurately reflect the train handling skills required.
- Coasting functions.
- Allowing individual wagon characteristics rather than an average mass and curving performance.
- It was also promised to improve the dynamic braking functionality.





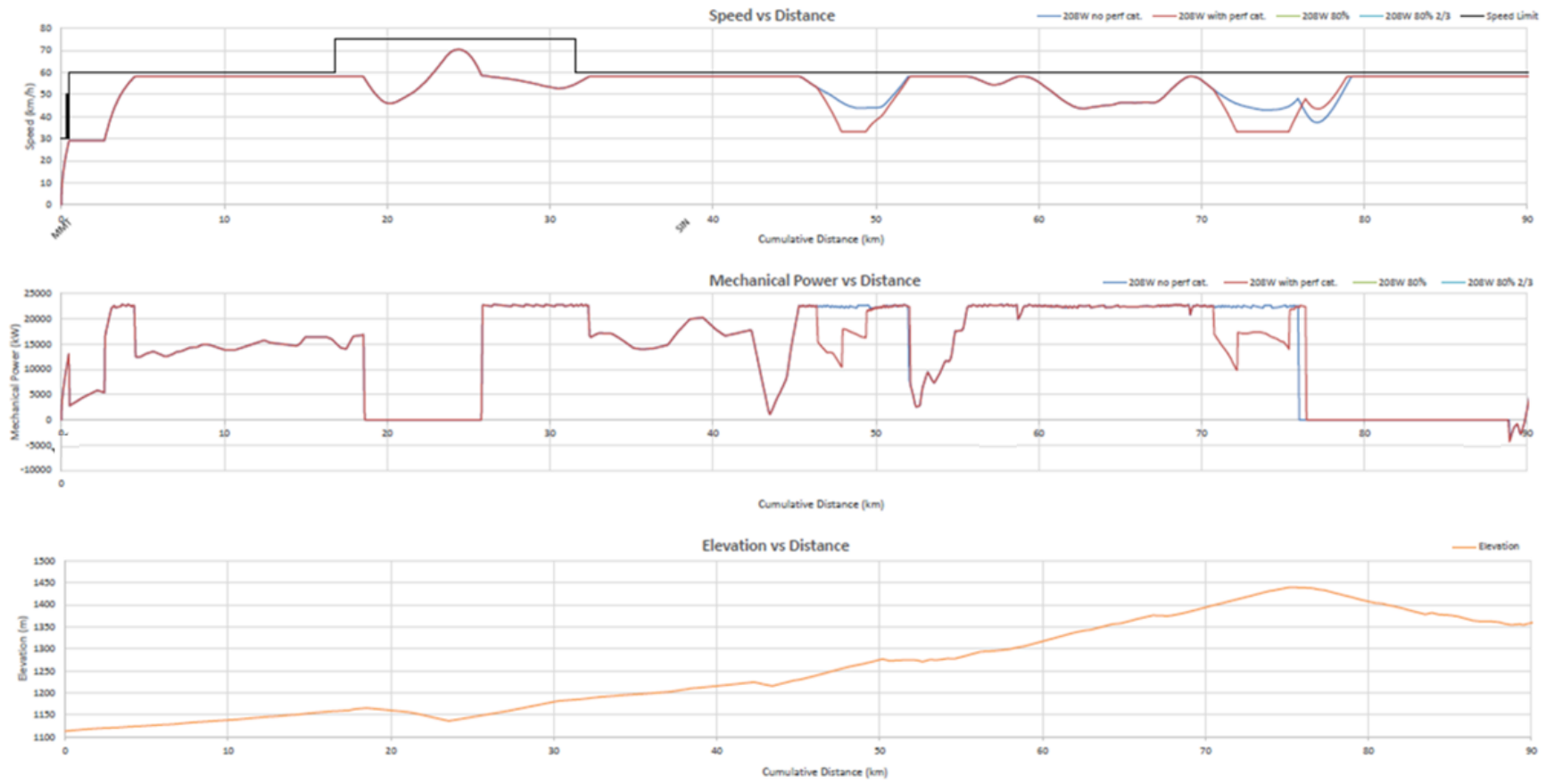
Freight Train Handling

- Preservation of momentum over undulating track sections for fuel economy, noise reduction and wear minimisation.
- Controlling in train forces to prevent coupler breakages.
- Maintain train power / dynamic braking demand to within traction system constraints. NB This is speed dependent.



Plateway project

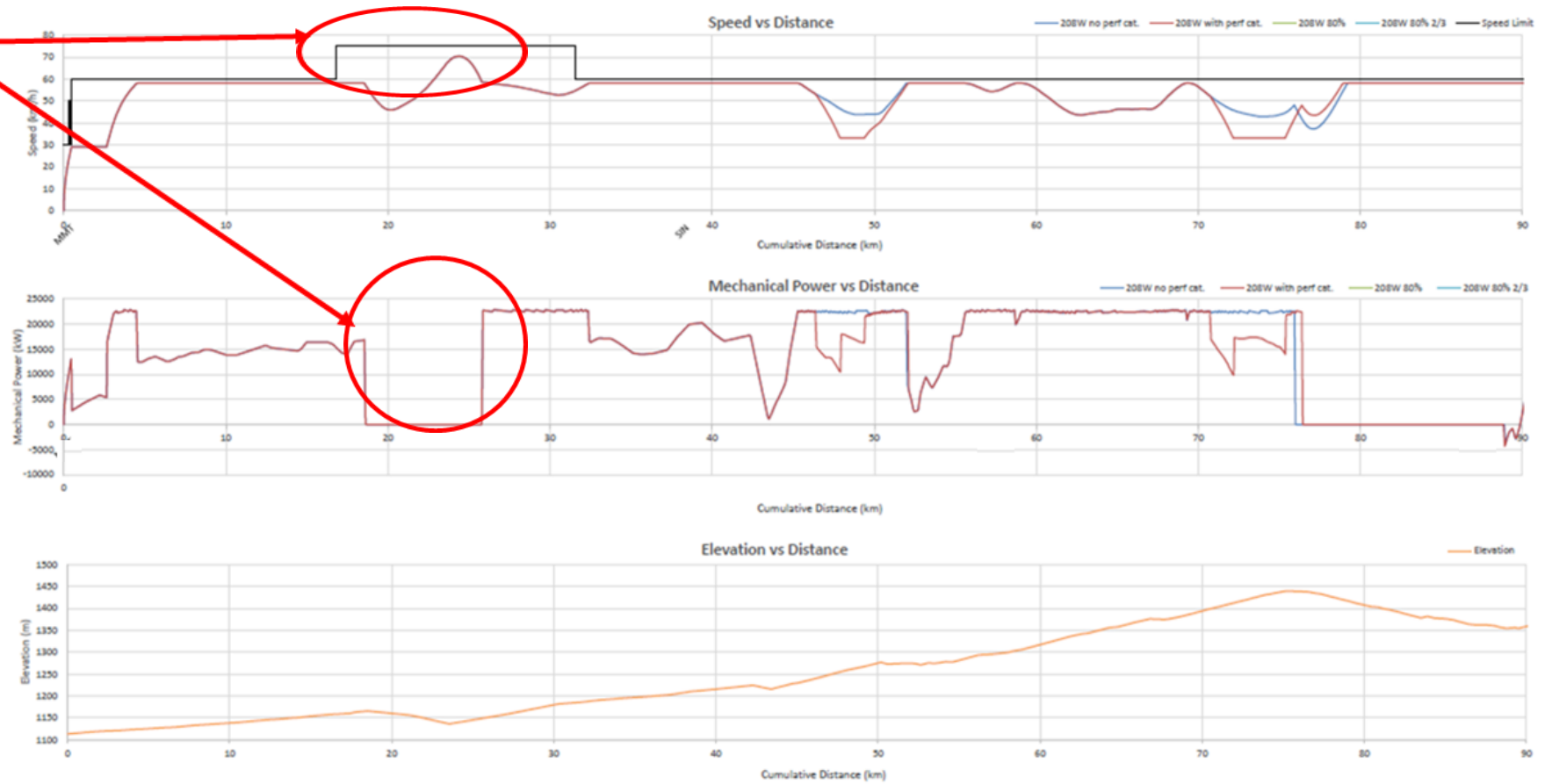
- Plots showing train consist speed, power consumption and gradient profile when trying to align train performance with train handling guide
- The coasting signal functionality was used on OpenTrack to mimic train handling behaviour





Plateway project

- Observe the impact of the coasting signal on speed (top plot) and power consumption (middle plot)



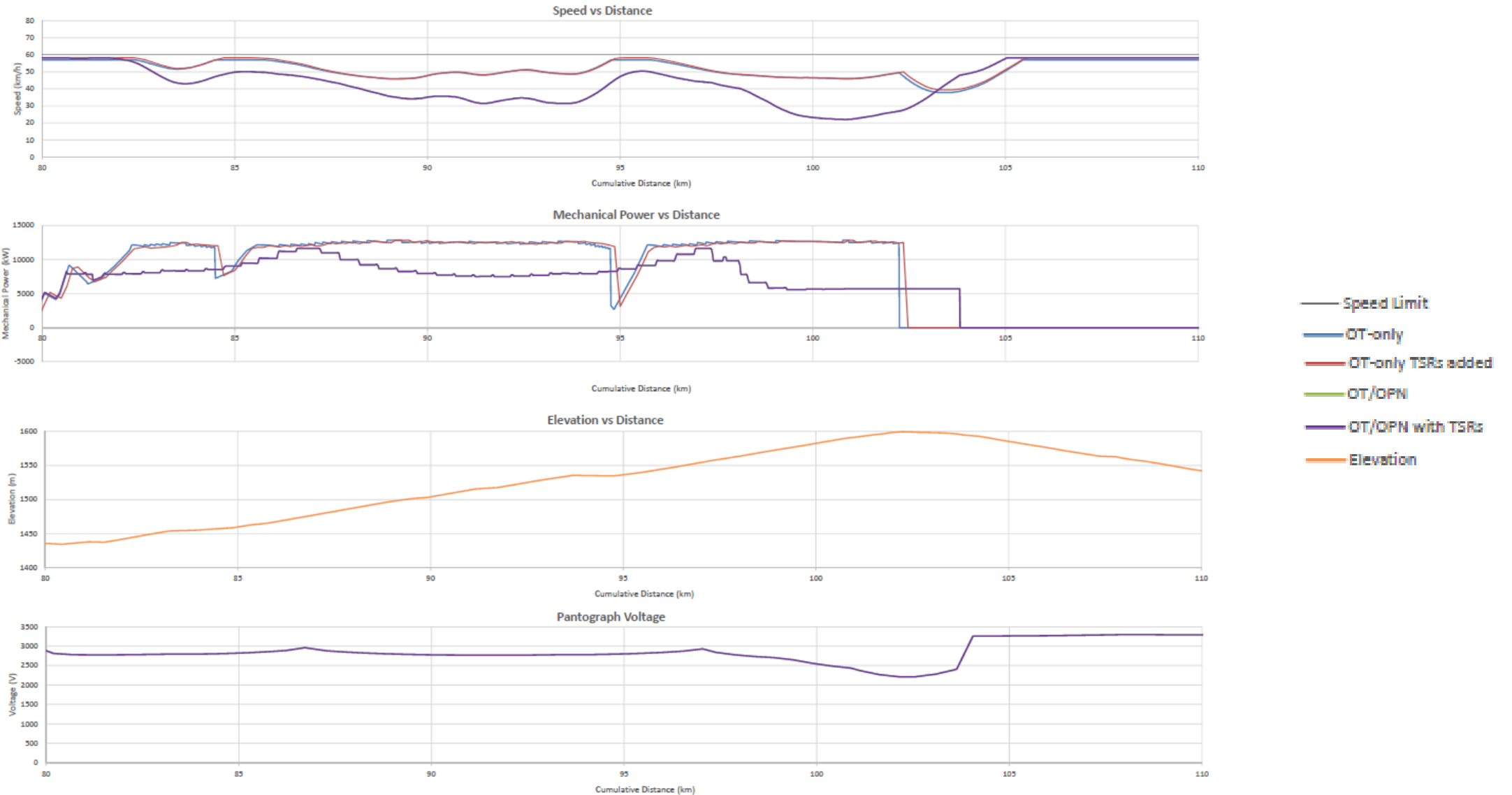


Impact of Traction Supply

- OpenTrack alone is not able to tell the full story of the electrical requirement
- OpenPowerNet was able to simulate the electrical requirement with the result graphed in excel



Impact of Traction Supply





Thank you for your attention

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