



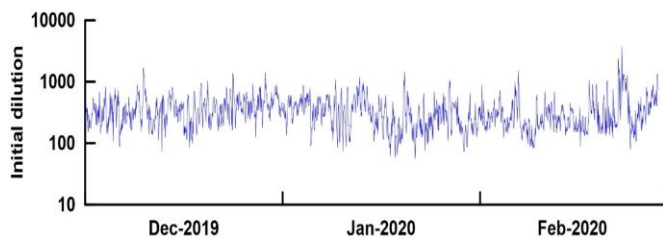
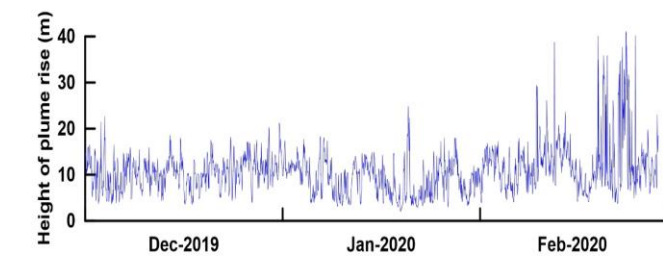
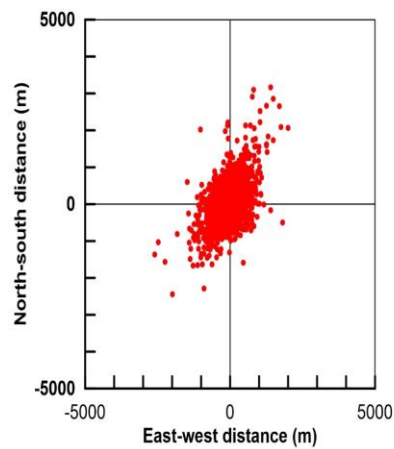
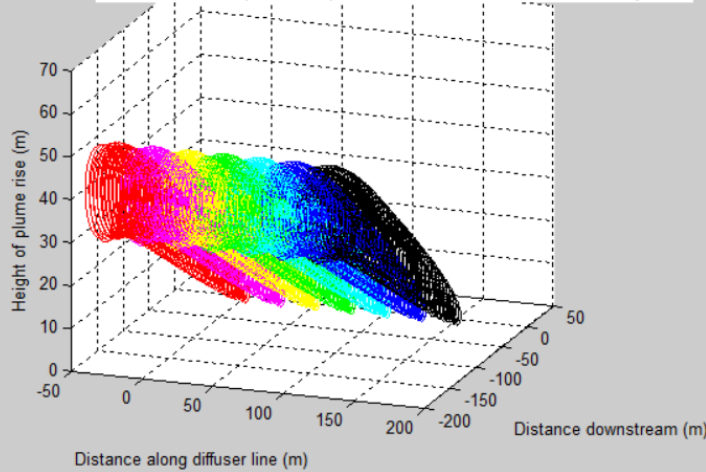
SYDNEY DEEPWATER OCEAN OUTFALLS – Near-field Numerical Modelling, Data Analysis and Interpretation and Reporting

Monitoring program design
Data analysis and near field modelling
Interpretation and reporting

Client: Sydney Water (via Oceanographic Field Services Pty Ltd)

Dates: January 2020 to December 2024

Bondi outfall (section): 7 risers each with 4 outlet ports



Project Description:

Sydney Water operates three major wastewater treatment plants discharging wastewater to the coastal waters via three deepwater ocean outfalls. The discharges have the potential to impact offshore and beach bathing water quality. The Ocean Reference Station collect oceanographic data that are used as input to near field numerical models. Output from these models estimates the location of the wastewater plumes, their height in the water column and their dilution. Using this information, potential impacts can be identified. WQ Data was engaged to run the models and interpret their results.

Work undertaken by WQ Data:

- Provide a QA check on the ORS data.
- Run the near-field model PLOOM3 – written by WQ Data staff.
- Statistical analysis of the results: Plume location, height of rise, dilution.

Project outcomes:

- Monthly checking of ORS data and other data used as input to the near field model.
- Provision of model output, including an interpretation of results e.g. comparison with historical data, unusual events and their potential impacts.
- Technical report detailing plume statistics, the likelihood of plume visitation and the likelihood of sediment movement under a range of oceanographic conditions.