Suwignyo Prasetyo

Data Engineer · Python Backend Developer · Workflow Automation

Jakarta, Indonesia · tyo.suwignyo@gmail.com · +62 822-4638-9922 · tyorus.com · linkedin.com/in/tyo-suwignyo · github.com/tyorus

SUMMARY

Data Engineer and Python Backend Developer with 3+ years building data-intensive applications, automated workflows, and production systems. Experienced in Python, Prefect, Linux, Docker, object storage, and HPC, with geospatial/metocean domain expertise — currently operating BMKG Ocean Forecasting System (BMKG-OFS) production workflows at the Centre for Marine Meteorology.

EXPERIENCE

Indonesian Agency for Meteorology, Climatology, and Geophysics (BMKG) Jan 2023 – Present

Centre for Marine Meteorology · Jakarta, Indonesia · Hybrid

Metocean Data Engineer Sep 2023 – Present

- Develop and maintain production pipelines and automated workflows with Python, Bash, Prefect, and SLURM (ingestion, processing, validation, monitoring, dissemination).
- Support operational forecasting systems with L2/L3 troubleshooting; process large-scale time-series/multidimensional data and QC missing, delayed, or invalid inputs.
- Build Python/Streamlit apps; develop cloud-optimized datasets with Xarray, Zarr, and S3-compatible storage.
- Benchmark compute-intensive workflows (INACAWO, INAWAVES, INAFLOWS); contribute to AI and Big Data modernization (MMS).

Marine Meteorologist Jan 2023 – Sep 2023

- Forecasted wind, waves, tides, and severe weather; verified observational/NWP data; briefed maritime, fisheries, and offshore users.
- Field work: ADCP surveys in Jakarta Bay, Jalacitra Expedition 2023, and Fishermen Weather Field School.

Data Analyst — Fastwork Technologies Indonesia · Freelance Sep 2025 – Nov 2025

- ECG time-series analysis with the Hilbert–Huang Transform; delivered the workflow to client requirements.

SELECTED PROJECTS

- **BMKG-OFS Analysis Platform** (2025) — Streamlit analysis/monitoring (klimatologi.pusmar.id).
- **BMKG-OFS DRC Backup** (2024) — Standalone wave-forecast backup with HPC performance benchmarking.
- **Zarr archive for BMKG-OFS** (2024) — Large-scale multidimensional model archive for scalable geospatial access.
- **INACAWO post-processing** (2024) — Parallel post-processing for the 3-way coupled model (Baron Weather).
- **BMKG-OFS bias correction** (2024) — MOS correction of significant wave height vs satellite altimetry.
- **Coastal flood ConvLSTM** (2024) — Semarang coastal-flood model; AI Datathon finalist (BMKG × KORIKA).

SKILLS

Data engineering: Python, ETL/ELT, Prefect, Xarray, Zarr, NetCDF, data QC, time-series
Platform & backend: Linux, Bash, Docker, AWS / object storage, SLURM, APIs, Grafana
Geospatial & metocean: WAVEWATCH III, SWAN, NWP, hindcast, model verification, marine forecasting
Languages: Indonesian & Javanese (native); English (IELTS 6.5, CEFR B2)

EDUCATION

State College of Meteorology Climatology and Geophysics (STMKG) Sep 2018 – Sep 2022

BASc, Meteorology · GPA 3.70 / 4.00 · honours (3rd in Department) · fully funded BMKG scholarship
Thesis: moistening of cold-surge air masses over the western Maritime Continent using ERA5 (2010–2019).

HONORS, RESEARCH & TRAINING

- **Trainer** — Satellite Altimetry for Operational Metocean Services (BMKG × OTGA), 2024 · **AI Datathon Finalist** (BMKG × KORIKA), 2024
- **Karya Cipta Madya** (STMKG, 2022) · **BMKG Scholarship** (2018–2022) · WW3 optimization with Eviden (2024) · Ship Safety Score Model (peer-reviewed, 2024)
- Haryanto et al. (2023), *JPFA* 13(1) · Prasetyo et al. (2022), *Jurnal Aplikasi Meteorologi* 1(1)
- HPC Scientific Computing — NPTEL (2025) · Model Validation & HPC — CLS France (2024) · Intro to HPC — BMKG · AWS Cloud & Gen AI · INACAWO Hindcast