

PyForecast

Ground Truth Comparison

Test Results Report

Pre-Production Improvements Verification

Total: 64

Passed: 64

Failed: 0

Duration: 1.08s

Generated: January 29, 2026 at 10:50

Ground Truth Comparison Tests

GroundTruthResult Tests

GroundTruthValidator Tests

Batch Validation Tests

+ test_validate_batch_returns_summary	PASSED
+ test_validate_batch_tracks_mismatches	PASSED

New Feature Tests

MAPE Edge Case Handling

Tests for handling None MAPE when insufficient data points exist:

+ test_is_good_match_high_mape	PASSED
+ test_mape_valid_property	PASSED
+ test_mape_valid_false_when_none	PASSED
+ test_is_good_match_false_when_mape_none	PASSED
+ test_match_grade_x_when_mape_none	PASSED
+ test_summary_filters_none_mapes	PASSED

Rate Validation

Tests for NaN, infinite, and negative value handling:

+ test_validate_rates_handles_nan	PASSED
+ test_validate_rates_handles_inf	PASSED
+ test_validate_rates_handles_negative	PASSED

Summary Functions

ARIES Importer Tests

Well ID Normalization

+ test_api_with_dashes	PASSED
+ test_api_with_spaces	PASSED
+ test_api_no_separators	PASSED
+ test_api_14_digit	PASSED
+ test_short_number_not_api	PASSED
+ test_api_normalization_matching	PASSED

Expression Parsing

+ test_parse_standard_expression	PASSED
+ test_parse_hyperbolic_expression	PASSED
+ test_parse_harmonic_expression	PASSED
+ test_parse_expression_without_type	PASSED
+ test_parse_invalid_expression	PASSED
+ test_parse_failures_tracked	PASSED
+ test_parse_failures_returns_copy	PASSED

Parse Failure Logging

Tests for tracking and logging unparseable expressions:

+ test_parse_failures_tracked	PASSED
+ test_parse_failures_returns_copy	PASSED
+ test_empty_expression_not_tracked_as_failure	PASSED

Lazy Loading

Tests for memory-efficient streaming mode:

+ test_lazy_mode_loads_count	PASSED
+ test_lazy_mode_get_finds_data	PASSED
+ test_lazy_mode_list_wells	PASSED

Implementation Summary

Features Implemented

Rate Validation

Checks for NaN, infinite, and negative values in forecast arrays

MAPE Edge Cases

Returns None when insufficient data, adds mape_valid property

ID Mismatch Logging

Tracks wells in pyforecast-only and ARIES-only

Parse Failure Logging

Logs warning with expression text for unparseable expressions

Time-Series Export

Exports forecast arrays to ground_truth_timeseries.csv

Comparison Plots

Generates overlay plots with --gt-plots flag

Lazy Loading

Streams file with --gt-lazy for large datasets

Parallel Validation

Uses ThreadPoolExecutor with --gt-workers N

New CLI Flags

```
--gt-plots      Generate comparison plots for each well
--gt-lazy       Stream ARIES file instead of loading into memory
--gt-workers N Number of parallel workers for validation
```

Files Modified

```
src/pyforecast/
refinement/
    ground_truth.py      # Rate validation, MAPE handling, batch validation
    schemas.py          # mape_valid property, X grade
    plotting.py         # NEW - comparison plots
    __init__.py          # Export GroundTruthSummary
import_/
    aries_forecast.py   # Parse failure logging, lazy loading
cli/commands.py      # New flags, time-series export
config.py            # gt_lazy, gt_workers options

tests/
    refinement/test_ground_truth.py  # New test cases
    import_/test_aries_forecast.py # New test cases
```