PA FIRMS Bushveld Activity

Bushveld Igneous Complex produces both Pt and Pd. Same fire-disruption mechanism as Z4697 PL. 40% world Pd from this region + Russia (40%) . Russia/SA bipolar supply makes either supply shock material.

David Stendahl · Market Lab Analytics · November 6, 2026

What this signal is

Bushveld Igneous Complex produces both Pt and Pd. Same fire-disruption mechanism as Z4697 PL. 40% world Pd from this region + Russia (40%) . Russia/SA bipolar supply makes either supply shock material.

The composite is bounded between minus one and plus one through tanh. On 2023-01-04 it reached its series maximum plus 0.725 and on 2018-09-20 its series minimum minus 1.000.

Today the composite reads near −0.06. See live page for current state.

• • •

How the inputs compose

Bushveld Igneous Complex produces both Pt and Pd. Same fire-disruption mechanism as Z4697 PL. 40% world Pd from this region + Russia (40%) . Russia/SA bipolar supply makes either supply shock material.

The engine also computes four confirming features: five-day velocity, 60-day volatility regime, 60-day correlation with palladium returns, 63-day lag-1 autocorrelation.

• • •

What the state-conditional returns have actually done

The palladium forward-60-day return baseline (unconditional) is mean plus 2.40 percent, median plus 2.19 percent.

> **Reference baseline (6,295 palladium-aligned forward-60-day windows over the live engine window)**

> Palladium forward-60-day return baseline: mean plus 2.40 percent, median plus 2.19 percent. Phase 0 source: Z4699 engine parquet joined with NYMEX palladium back-adjusted continuous closes.

Bushveld fire activity high (Phase +1), 2,007 trading days, returned on average plus 0.90 percent.

Normal (Phase +0), 3,622 trading days, returned on average plus 2.48 percent.

Bushveld fire activity low (Phase −1), 3,332 trading days, returned on average plus 0.51 percent.

• • •

Three cases that frame how to read the signal

Case 1: 2023-01 composite series maximum

On 2023-01-04 the composite reached its series maximum plus 0.725. Palladium subsequent 60-day behavior aligned with the bushveld fire activity high regime pattern.

Case 2: 2018-09 composite series minimum

On 2018-09-20 the composite reached its series minimum minus 1.000. Palladium subsequent 60-day behavior aligned with the bushveld fire activity low regime pattern.

Case 3: March 2020 COVID shock window

The March 2020 COVID liquidity shock drove violent regime shifts across palladium drivers. The composite oscillated as the underlying mechanism repriced.

• • •

How to use the signal today

This is a regime detector on a 60-day forward horizon.

Three best uses. First, as a regime filter for palladium exposure (Phase +1 equals bushveld fire activity high). Second, as a cross-check against positioning and price-momentum signals. Third, as a transition-window warning, pairing with price-based signals for conviction.

• • •

Methodology notes

Bushveld Igneous Complex produces both Pt and Pd. Same fire-disruption mechanism as Z4697 PL. 40% world Pd from this region + Russia (40%) . Russia/SA bipolar supply makes either supply shock material.

The 1990 start reflects the earliest reliable source coverage.

• • •

What this signal does not cover

Four caveats. The signal is a regime detector, not a timing signal. State-conditional means hold on average, not for every individual window. Regime persistence varies with macroeconomic backdrop. Individual windows can run much longer or shorter than mean sample. State-conditional edges are

backward-looking empirical averages. Future regimes may differ. The baseline is NYMEX palladium back-adjusted continuous (PA_1240BD).

Not investment advice. Signal readings and empirical statistics are derived from publicly available data sources. (c) 2026 David Stendahl.