RED RIVER ANALYTICS · DATA PRODUCT

SATELLITE-DERIVED · CORS-CALIBRATED

Ground Subsidence Dataset

Parcel-level ground movement data for 182,000+ properties in the Shreveport-Bossier MSA

182K+	–6.1 mm/yr	–10.2 mm/yr	24,661
PARCELS ENRICHED	CADDO MEDIAN	BOSSIER MEDIAN	MULTI-TRACK CADDO

Louisiana ranks among the highest ground subsidence rates in the United States. Vertical movement exceeding –5 mm/yr can compromise foundation integrity, alter drainage patterns, accelerate flood risk entry, and reduce the effective structural life of a building. No parcel-level subsidence data has been publicly available for this market — until now. RRA has processed two independent Sentinel-1 satellite passes, calibrated against a permanent geodetic reference station, and joined the results to every parcel in Caddo and Bossier parishes.

KEY FINDINGS

WHO USES THIS DATA

- **P&C insurance carriers**
  Underwrite subsidence-driven structural risk and adjust premiums ahead of flood zone reclassification
- **Mortgage lenders and servicers**
  Assess long-term collateral stability — a parcel sinking toward the flood boundary is a 30-year risk
- **Foundation and structural contractors**
  Identify high-velocity parcels as qualified leads for foundation repair and remediation
- **Municipal engineers and planners**
  Prioritize infrastructure maintenance for roads, utilities, and drainage in high-movement corridors

–6.1 mm/yr	Caddo Parish median vertical velocity — persistent, measurable, and compounding annually
–10.2 mm/yr	Bossier Parish median — among the highest sustained subsidence rates in the continental US
117,734	Parcels exceeding the –5 mm/yr structurally significant threshold — foundation and drainage effects become compounding at this rate
Multi-track	Confidence rating on each record — dual-pass averaging is more accurate than any single-track product

- National data aggregators
  Enrich national property intelligence products with a local subsidence layer unavailable elsewhere

DATA SOURCES

Derived from Sentinel-1 C-band satellite radar imagery, processed as a multi-year time series using two independent orbital passes (ascending Track 63 + descending Track 136). Vertical velocities computed from both passes and averaged for superior accuracy. Calibrated against a NOAA permanent geodetic station, anchoring measurements to a published ground-truth benchmark. Results spatially joined to parcel centroids.

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📦 **Delivery options:** CSV or GeoJSON by parish · Per-parcel lookup integration · Quarterly refresh · GIS-ready (EPSG:4326).
Each record includes: **velocity_vert_mmyr** (averaged), per-track values, confidence tier (multi-track / single-track), and parcel centroid coordinates (EPSG:4326).
Flood zone context, freeboard depth, and encroachment horizon are available