CLIMATE RISK BRIEFING

2027 Super El Niño:

A Stress Test for Portfolios, Not Just the Climate

Why a fast-forming climate event belongs on the risk committee agenda — and how to size the exposure

EXECUTIVE SUMMARY

A shock capable of removing trillions in global output

A powerful El Niño began forming in June 2026 and early indicators show the potential to become one of the strongest on record. For investors, the relevant question isn't meteorological — it's economic: **which regions, sectors, and holdings are exposed to a shock capable of removing trillions of dollars from global output within 18 months.**

History suggests this is not a marginal risk. Trex's modelling shows how a single event of this kind can knock out several percentage points of GDP in specific economies, redraw the map of physical hazard exposure overnight, and move markets in agriculture, mining, manufacturing and construction before it shows up in a quarterly earnings call.

€4.1tn	~4%	2027
peak annual global GDP loss modelled in a super El Niño year	GDP hit modelled for Indonesia at the peak of the shock	the year a super El Niño could make the warmest on record

The bottom line for investors

It's not a slow-burn trend — it's a shock. A super El Niño overlays a sharp, temporary climate spike on top of long-term warming. Previous events have added up to 0.25C of extra global warming in a single year, on top of already-rising baselines.

The costs are large and concentrated. Prior super El Niño events have been linked to trillions of dollars in global economic losses, with impacts falling hardest on agriculture, mining, manufacturing, construction and trade-exposed sectors. Markets are already positioning for the 2026/27 super El Niño risk. The World Bank and FT are highlighting risks to global food prices and agriculture production, and mention that some investment firms are designing dedicated strategies for the phenomenon.

Exposure depends on geography. El Niño redraws the risk map rather than simply turning up the dial everywhere. The same event can heighten extreme drought events in Australia, Southern Africa and the Amazon, while intensifying flooding in western South America and southern USA — so two portfolios with similar sector mixes can carry very different exposure depending on where assets, operations and supply chains sit.

The next shock is already underway. The current event, which began forming in June 2026, has the characteristics of a "super" El Niño and could make 2027 the warmest year on record, potentially adding 0.2C globally, and intensifying extreme events across different regions.

What's actually happening

El Niño is a natural, recurring shift in the Pacific Ocean that happens, on average, every two to seven years. In its strongest form — known colloquially as a "super" El Niño — the effect can be large enough to temporarily push global temperatures well above trend, on top of long-term climate change.

The temporary warming effect of a super El Niño can create a materially different physical risk backdrop from a smooth long-term warming trend alone. The temporary push in global temperatures translates to a short-term climate shock that can alter the probability, timing, and severity of extreme events in a regionally-dependent way, ultimately leaving a measurable mark on global GDP of trillions of dollars.

Where the risk concentrates

A super El Niño doesn't raise risk evenly around the world — it reshuffles it. In the Trex Tipping Point Scenarios (TPS) analysis **based on combining advanced climate modelling, including a Super El Niño event, with economic impact analysis** the countries & sectors most exposed to extreme hazard impacts include:

- Argentina and Brazil — flooding and heat stress
- Australia, India, Mexico and South Africa — intensified drought
- Indonesia — extreme heat, with a modelled GDP impact of roughly 4% relative to baseline at peak

*Table 1: **Top five sector GVA and overall GDP impacts under a modelled super El Niño shock in the Trex TPS scenarios.** Below is an excerpt of values representing deviations from the TPS Baseline for global sector gross value added, with the final row showing the corresponding aggregate GDP impact. The surrounding years provide context, illustrating the high impacts for a super El Niño in TPS. The full sector breakdown and how El Niño shocks are modelled in TPS can be found in the Annex.*

Sector	Two years before the super El Niño	Year before the super El Niño	The super El Niño shock	Year after the super El Niño	Two years after the super El Niño
A, Agriculture, forestry & fishing	-2.0%	-3.4%	-4.3%	-2.3%	-1.5%
B, Mining & quarrying	-2.8%	-3.2%	-4.8%	-4.5%	-2.6%
C, Energy-intensive manufacturing	-4.5%	-6.6%	-7.6%	-5.0%	-4.4%
C, Other manufacturing	-4.4%	-6.1%	-7.1%	-4.8%	-4.4%
F, Construction	-4.0%	-4.9%	-6.3%	-5.6%	-4.4%
Total GDP, as a percentage	-2.1%	-2.7%	-3.3%	-2.5%	-2.1%
Total GDP, in absolute terms	-€2.44T	-€3.32T	-€4.09T	-€3.21T	-€2.74T

At the global level, Trex's modelling shows the economic shock peaking at a loss of roughly €4.1 trillion in annual GDP relative to baseline, concentrated in energy-intensive manufacturing, construction, mining and agriculture — before a partial recovery as trade and investment adjust. This macroeconomic shock is equivalent to roughly 3–4% of current global GDP, based on a world economy of around €110–120 trillion.

A shock of this magnitude is comparable to the annual output loss experienced during the Global Financial Crisis of 2008–09, or the first year of the COVID-19 pandemic, when global GDP fell by around 3–4% relative to its pre-crisis trajectory.

The historical precedent

Two past El Niño-related events illustrate the scale of disruption a super El Niño can cause:

- The 2015/16 event drove droughts across Southern Africa that cut food production by as much as 66% in some countries.
- The 1997/98 event triggered fires across Indonesia that burned close to 10 million acres, disrupting crops, timber, air travel and tourism at an estimated cost of $10 billion.

Both events were regionally concentrated rather than uniform in impact. This implies that financial exposure is a function of where a portfolio's assets and revenue actually sit, and it is not a generic, across the board, shock.

How Trex turns this into a portfolio-ready signal

Trex turns the super El Niño signal into portfolio-ready insight through two complementary lenses;

- **Top-down macroeconomic scenarios:** TPS shows how a physically coherent El Niño shock can affect country GDP, sector output, investment and trade-exposed activity, benchmarked against a consistent, no-shock, baseline.
- **Bottom-up physical risk modelling:** Trex hazard-impact data identifies where tail-risk conditions may increase across flood, heat, wildfire, drought and cyclone, allowing clients to assess which assets, operations and value chains sit in affected regions.

What this means for you

With a super El Niño already forming, the window to understand exposure — and to act on it — is now, not after the event peaks. Trex can map your portfolio's exposure to this specific event, by geography and by sector, and show how it compares against your existing climate scenario assumptions.

Get in touch with Trex to discuss a portfolio exposure read-out ahead of the 2027 peak.

ANNEX

How Trex translates a super El Niño into economic risk signals

What makes a super El Niño?

El Niño is the warm phase of a recurring climate pattern in the tropical Pacific Ocean known as the El Niño-Southern Oscillation or ENSO. In normal conditions of ENSO, strong trade winds, blowing from east to west, cause the cooler ocean water of the eastern Pacific to rise to the surface. During an El Niño, however, those trade winds weaken, keeping colder water trapped at the bottom of the ocean, and leading to abnormally warm surface water temperatures in the eastern tropical Pacific. A super El Niño is when an extreme version of this occurs with very high levels of abnormal ocean warming.

El Niño years are typically warmer than average globally, as a result of the warmer surface ocean waters releasing additional heat into the atmosphere. Previous events demonstrate the scale of this effect: the last super El Niño in 2015/16 could have contributed up to 0.15-0.25C in additional warming in 2016 (Knutsen *et al.,* 2018), and the global warming spike in 2023 can be partially explained by a strong El Niño that year (Samset *et al.,* 2024). Looking ahead, a super El Niño could contribute to record global temperatures in 2027, with warming potentially approaching 1.7C as discussed by Hansen *et al.* (2025) and Hausfather (2025).

Notably, the distinction between an El Niño and a super El Niño—or even simply a strong El Niño—is not made until in retrospect, with ONI forecasts and ocean temperatures guiding such a classification. For the 2026 El Niño, the exact strength of the upcoming El Niño will not be determined until later in the year, depending on how much warming is observed in the eastern tropical Pacific.

El Niño changes hazard probabilities differently across regions (McPhaden *et al.,* 2006):

- Drought risks are increased in Australia, Indonesia, Southern Africa, the Amazon.
- Drought and heat stress risks can increase for India, which may also experience weaker monsoons.
- Increased extreme rainfall and flooding risks in western South America, Western and Southern USA.
- Tropical cyclones risk profiles will change for Central America and the southern USA, with cyclones intensifying in the North Eastern Pacific but reduced in the Western Atlantic.
- As a result of teleconnections, Atlantic storms will increase, resulting in additional storms and associated increased risk of flooding for the UK and Western Europe (Ineson *et al*., 2025).

Historic super El Niño events have been associated with some of the most significant climate and economic tail events on record. Examples from the two largest super El Niño episodes in recent history include:

- The Southern African drought induced by the 2015/16 El Niño led to declines in food production of up to 66% in various countries in the region (Ainembabazi *et al.,* 2018).
- The Indonesian fires during the 1997/98 El Niño caused by severe drought and ignition by plantation companies led to nearly 10 million acres being burned—destroying crops and timber, as well as affecting air travel, air quality and tourism estimated to have cost $10 billion (Barber and Schweithelm, 2000).

The commercial stakes are significant: previous super El Niño events have been associated with trillions of dollars in global economic costs (Liu *et al.,* 2023), and their frequency is expected to rise as global temperatures increase (Cai *et al.,* 2014).

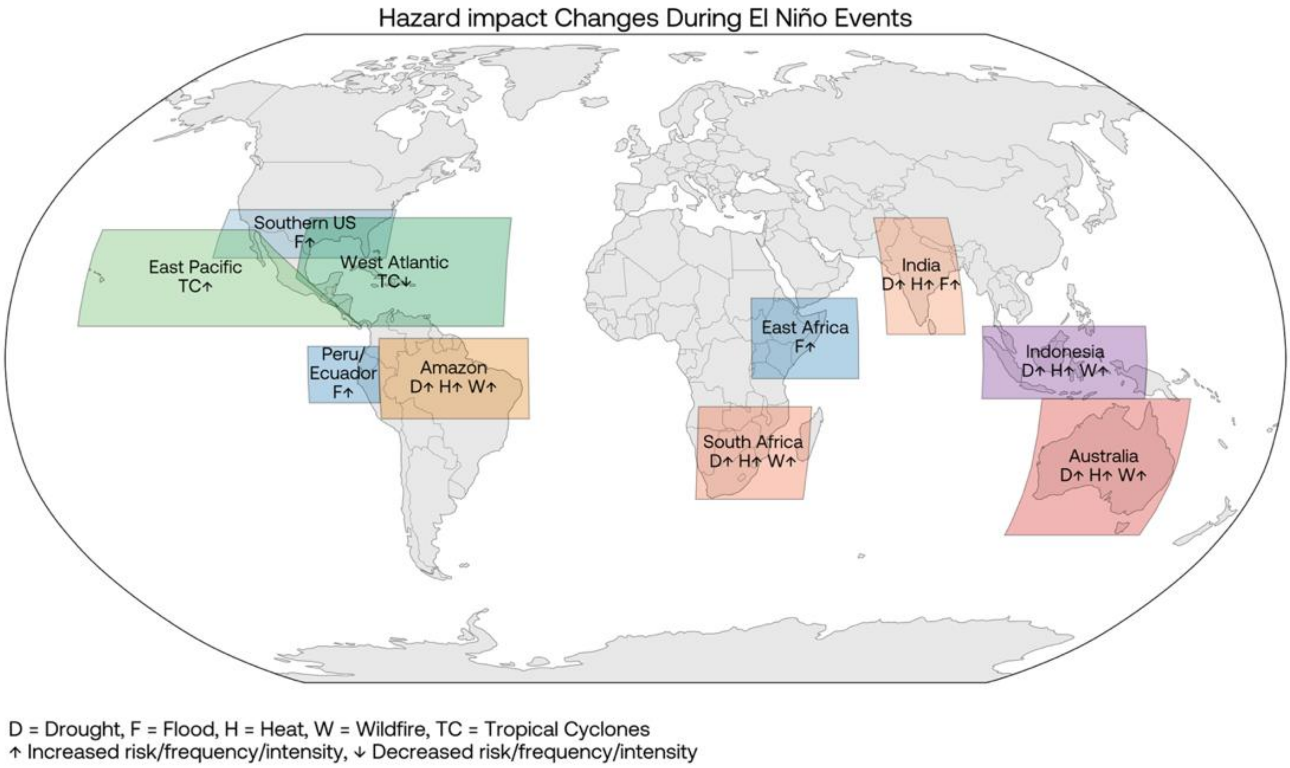

*Figure 1: **Indicative regional hazard pathways associated with El Niño events.** The map illustrates how El Niño can increase the likelihood of different hazard types across different regions, reinforcing the need for geography-specific portfolio exposure analysis. The UK and Western Europe will be indirectly physically impacted by El Niño; firstly, through increased Atlantic storm connections, and secondly, through the global warming boost of a Super El Niño. Global warming for the UK and Western Europe increases the likelihood of intense summer heatwaves and wildfires.*

Bottom-up physical risk and super El Niño

Geospatial physical risk modelling provides a location-specific view of where a super El Niño may increase physical hazard stress. El Niño events are included in the underlying models behind geospatial physical risk, and hazards from these will be visible in the tails. In affected regions, flood, heat, wildfire, and drought may become more pronounced during El Niño years—while Atlantic tropical cyclones may reduce in intensity as a result of the fundamental change in atmospheric circulation driven by El Niño.

Trex TPS and super El Niño

The Trex TPS preserves a coherent timeseries of climate events with a realistic El Niño cycle, which includes a super El Niño in 2040/41 for the baseline hazard impacts, as well as an El Niño that meets the strong threshold (the category below a super El Niño) in 2026/27, shown in the timeseries below.

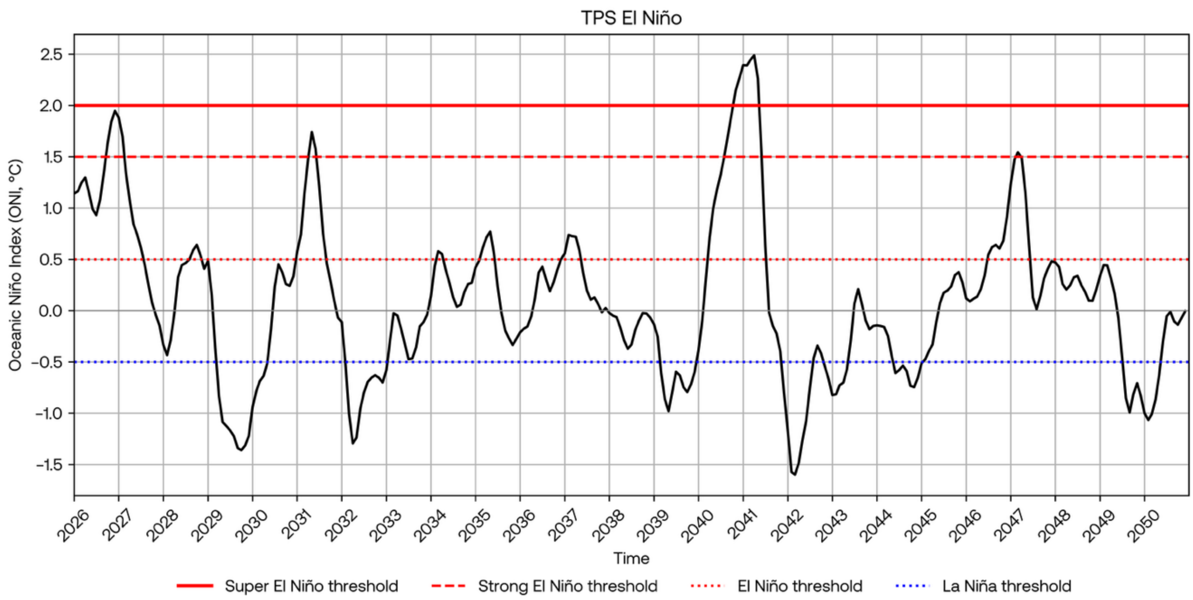

*Figure 2 - **El Niño severity embedded within the TPS Baseline hazard-impact scenarios.** The timeseries shows the Oceanic Niño Index (ONI) used to represent El Niño cycles within TPS with Hazard Impacts (Baseline scenario), including a modelled strong El Niño event in 2026/27 and a super El Niño event in 2040/41. The ONI shows the level of warming in the Eastern Tropical Pacific compared to normal conditions. The amount of warming to declare an El Niño is shown by the red dotted line, with the threshold for a strong (1.5-1.9C) and super El Niño (>2.0C) shown as the red dashed and solid lines respectively. Embedding these events directly within the scenario pathway allows clients to assess climate shocks as part of a coherent macroeconomic scenario, rather than treating them as separate one-off sensitivities.*

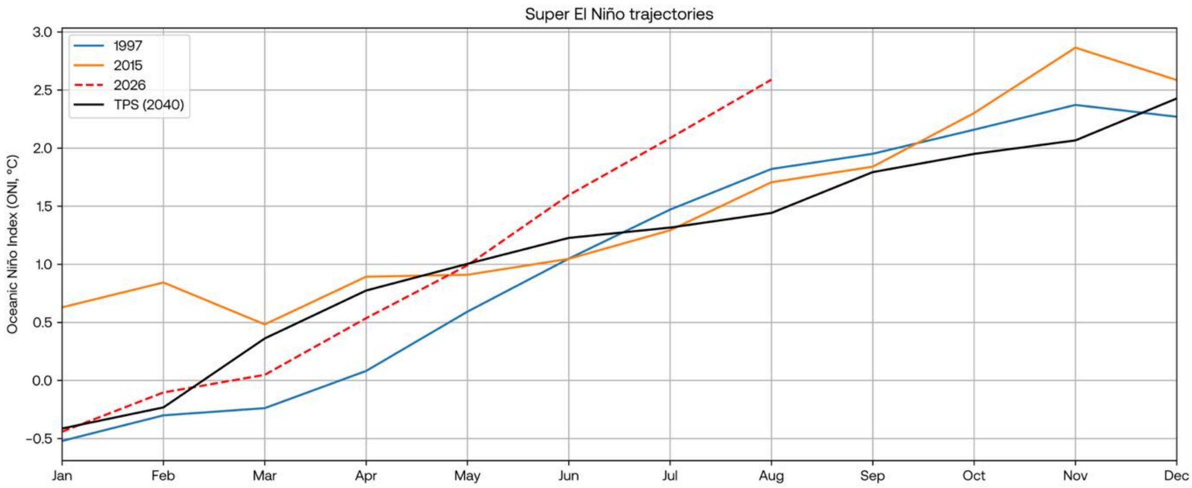

*Figure 3 **– Comparison of the TPS-modelled Super El Niño, historical events, and the 2026/27 Super El Niño**. The timeseries shows the Oceanic Niño Index (ONI) values for the 2040 Super El Niño within the TPS with Hazard Impacts (Baseline), two historical Super El Niños, and the current 2026/27 event (data source: The Climate Brink dashboard). The 2040 TPS baseline El Niño resembles the behaviour of the 2015 and 1997 El Niño; meanwhile, the 2026 event is already exceeding the peak ocean warming seen in the 1997/98 El Niño. The 2026 event is currently on track to potentially exceed any previously recorded El Niño.*

The TPS Baseline contains a strong El Niño in 2026/27 that, as of June 2026, was broadly comparable to the event currently developing. However, the latest observations indicate that the 2026/27 ONI warming is surpassing not only many modelled projections, but also historical events, in what is considered an unprecedented event. As the current El Niño strengthens, the TPS Permafrost scenarios provide an illustration of how impacts can be amplified under a more intense climate shock. The eventual classification of the real-world event can only be confirmed retrospectively, but regardless of the final intensity, TPS can provide a decision-useful indication of the types of regional hazard and macroeconomic impacts that may emerge.

Though the TPS Baseline develops into a strong El Niño that falls just short of the super El Niño category, the TPS with Permafrost scenarios stresses these impacts to show the effects of an even stronger El Niño event in 2026/27. The same El Niño events occur—at the same time—but will be of a higher intensity as a result of a warmer background climate, leading to more intense hazard impacts. The same timeseries is used between the TPS hazard impact scenarios to maintain comparability between scenarios.

In the super El Niño events in our TPS, we see particularly extreme events, across all three of the integrated hazards, in the following regions: Argentina, Australia, Brazil, India, Indonesia, Mexico, South Africa. This is not a fixed map of “El Niño-exposed” countries, as every super El Niño has its own regional signature with specific impacts. This regional specificity is precisely why scenario-based analysis is useful: it shows which economies are most exposed under a given modelled super El Niño, rather than assuming a generic global effect.

Indonesia illustrates how a regionally-concentrated physical hazard can translate into a material macroeconomic deviation within the TPS Baseline. Both the 2026/27 strong El Niño and 2040/41 super El Niño show that extreme heat and drought contribute to a sharp GDP impact relative to the baseline without hazard impacts (around 2% and 4% respectively for baseline hazard impacts). TPS with Permafrost show the impacts of higher hazard impacts associated with El Niño showing GDP impacts double those of the baseline. This demonstrates how an acute climate event can disrupt otherwise smooth economic expectations.

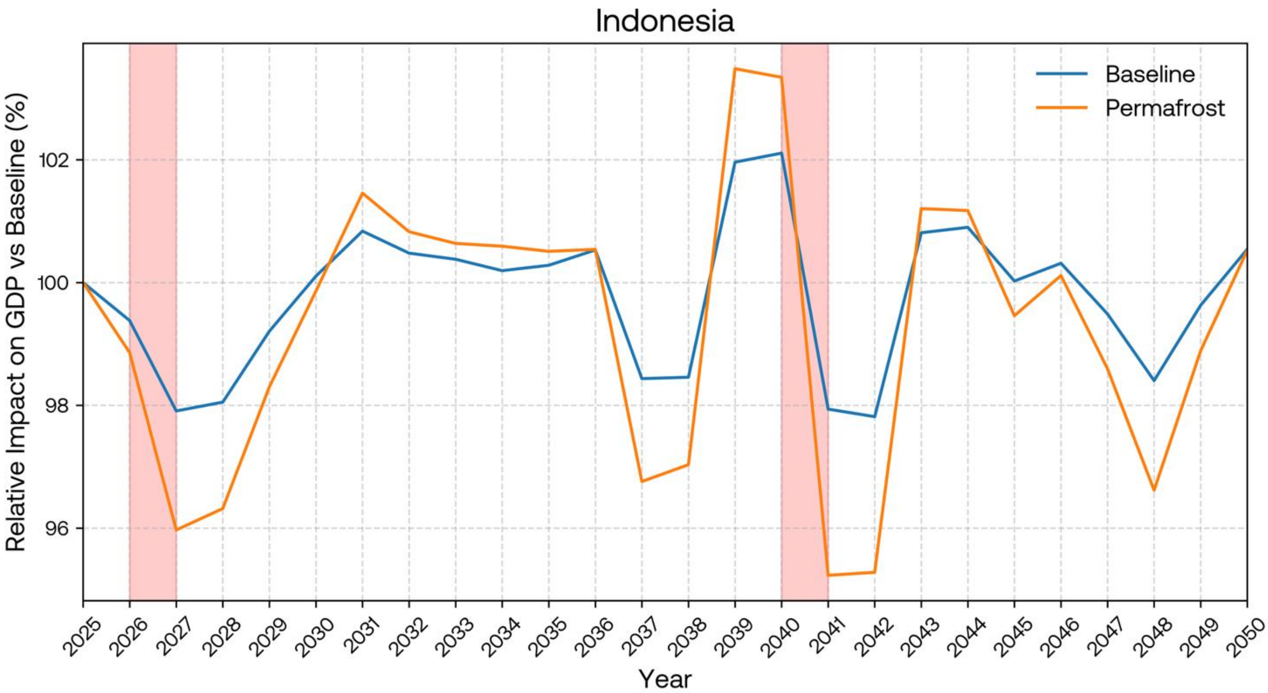

*Figure 4 – **From physical hazard shock to country-level macroeconomic impact.** Indonesia illustrates how a strong/super El Niño can create a measurable GDP deviation where regional hazard exposure is high. The highlighted event windows show the value of translating climate signals into country-level economic impacts that can be used in portfolio, sector and market exposure analysis. Baseline and Permafrost hazard impact scenarios are shown.*

In the TPS Baseline with hazard impacts, the economic disruption peaks in 2040, with the largest impacts concentrated in manufacturing, construction, and trade-exposed sectors. Global GDP falls by approximately €4.1tn relative to baseline at peak impact (see Table A1), before partially recovering as substitution and economic adjustment mechanisms take effect.

Embedding the super El Niño within the TPS Baseline with hazard impacts means that scenario results capture more than just direct economic losses from physical disruption alone. The initial climate shock enters the macroeconomic model as a partial economic impulse, applied through sector output, investment and financing channels in regions most exposed to the physical impacts of the event.

From that initial impulse, the E3ME model determines how the broader economy responds. This includes a range of adjustment mechanisms such as trade substitution toward less-affected regions, reallocation of investment, changes in sector competitiveness, and shifts in financing conditions. As a result, the sector and GDP impacts shown here reflect both the direct effects of physical disruption and the wider macroeconomic consequences of how the global economy responds.

Embedding a physically coherent super El Niño within the TPS Baseline means Trex users are enabled to identify where climate-driven disruption could affect countries, sectors, and portfolios — and to turn an episodic climate signal into actionable commercial risk insight.

Table A1: ***Modelled sector GVA and GDP impacts for the TPS Baseline, showing elevated impacts as a result of the incorporated super El Niño shock.*** *Values represent deviations from the TPS Baseline for global sector gross value added, with the final row showing the corresponding aggregate GDP impact. The table should be interpreted as the combined macroeconomic response to the initial physical hazard impulse, including direct sector disruption and wider adjustment mechanisms such as trade substitution, investment reallocation and changes in sector competitiveness.*

Sector	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
A, Agriculture, forestry & fishing	-2.5%	-2.3%	-2.4%	-2.0%	-3.4%	-4.3%	-2.3%	-1.5%	-0.8%	-0.7%	-1.1%
B, Mining & quarrying	-2.9%	-3.6%	-4.1%	-2.8%	-3.2%	-4.8%	-4.5%	-2.6%	-0.5%	-0.5%	-1.5%
C, Energy-intensive manufacturing	-4.6%	-4.7%	-4.9%	-4.5%	-6.6%	-7.6%	-5.0%	-4.4%	-3.4%	-3.1%	-3.5%
C, Other manufacturing	-4.2%	-4.3%	-4.5%	-4.4%	-6.1%	-7.1%	-4.8%	-4.4%	-3.9%	-3.8%	-4.2%
D, Electricity, gas, steam & AC	-0.8%	-1.0%	-1.1%	-1.1%	-1.5%	-1.4%	-0.8%	-0.8%	-0.8%	-0.6%	-0.5%
E, Water, waste & remediation	-0.8%	-0.7%	-0.6%	-0.7%	-0.9%	-1.1%	-1.0%	-0.9%	-0.6%	-0.5%	-0.6%
F, Construction	-3.4%	-3.7%	-4.1%	-4.0%	-4.9%	-6.3%	-5.6%	-4.4%	-2.9%	-2.6%	-3.2%
G, Wholesale & retail trade	-1.8%	-1.9%	-2.0%	-2.0%	-2.5%	-3.2%	-3.0%	-2.4%	-1.9%	-1.8%	-2.1%
H49, Land transport & pipelines	-1.5%	-1.5%	-1.5%	-1.5%	-2.0%	-2.4%	-2.0%	-1.8%	-1.5%	-1.4%	-1.6%
H51, Air transport	-1.0%	-0.9%	-1.1%	-1.0%	-1.0%	0.5%	1.9%	0.1%	-0.4%	-0.4%	-0.7%
H, Other transport	-2.1%	-2.1%	-2.1%	-2.1%	-2.7%	-3.1%	-2.4%	-2.1%	-1.8%	-1.6%	-1.8%
I, Accommodation & food service	-0.3%	-0.2%	-0.1%	0.0%	-0.1%	-0.1%	0.1%	0.2%	0.4%	0.5%	0.5%
J, Information & communication	-1.5%	-1.6%	-1.8%	-1.8%	-2.1%	-2.8%	-2.4%	-1.8%	-1.4%	-1.2%	-1.4%
K, Financial & insurance activities	-2.2%	-2.3%	-2.5%	-2.4%	-3.3%	-3.9%	-2.8%	-2.4%	-1.9%	-1.7%	-2.0%
L, Real estate	-0.8%	-0.8%	-1.0%	-1.0%	-1.2%	-1.4%	-1.4%	-1.2%	-1.1%	-1.0%	-1.2%
M-N, Professional & administrative services	-1.0%	-1.1%	-1.2%	-1.3%	-1.5%	-1.8%	-1.7%	-1.5%	-1.3%	-1.2%	-1.4%
O-Q, Public services, education & health	-0.1%	-0.1%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.1%	-0.1%	-0.2%
R-U, Arts, recreation & other services	-0.4%	-0.5%	-0.5%	-0.5%	-0.6%	-0.7%	-0.6%	-0.5%	-0.3%	-0.1%	-0.2%
Total GDP, as a percentage	-1.9%	-2.0%	-2.2%	-2.1%	-2.7%	-3.3%	-2.5%	-2.1%	-1.6%	-1.5%	-1.8%
Total GDP, in absolute terms	-€2.14T	-€2.29T	-€2.50T	-€2.44T	-€3.32T	-€4.09T	-€3.21T	-€2.74T	-€2.16T	-€2.04T	-€2.40T