

An aerial photograph of the Diablo Canyon nuclear power plant. The plant's containment domes and various buildings are visible on a coastal plain. To the left, the ocean features rocky shorelines and waves crashing against a breakwater. In the background, rolling green hills and mountains rise under a clear sky. The text "Diablo Canyon", "Independent", and "Safety Committee" is overlaid in a large, bold, dark blue font.

Diablo Canyon
Independent
Safety Committee

Public Meeting
October 22 and 23, 2025

Avila Lighthouse Suites

Diablo Canyon Power Plant Regulatory Performance Update

Jordan Tyman
Director, Risk & Compliance





DCPP Performance Summary

June 2025 – September 2025

- DCPP continues to provide safe, clean, and reliable electricity to Californians
- Since the last update to the DCISC, the NRC oversight of DCPP included approximately ~2,000 hours of inspection time
- Update on the very low safety significance violations received since the last DCISC update
- DCPP remains in the highest performance category for all NRC Performance Indicators

NRC Performance Indicators

DCPP remains in the highest performance category

- In addition to performing inspections, the NRC also evaluates every nuclear plant using performance indicators
- NRC gauges licensee performance using 16 separate indicators related to various aspects of plant operation
- DCPP remains in the highest performance category of the NRC's Reactor Oversight Process Action Matrix
 - No inspection findings of more than minor significance since the last DCISC update
 - Performance indicators within the expected range (i.e., green)



Regulatory Update

June 2025 – September 2025

NRC Violations

- DCPD received no violations of more than minor significance since the last DCISC update



Regulatory Update

June 2025 – September 2025

Licensee Event Reports (LER)

- There were no LERs issued during the reporting period



Upcoming Inspections

Upcoming NRC Inspections

- Operator License Exam Administrations – 10/26-11/8/2025

Licensing Activities

License Amendments

- DCPD received NRC approval of several License Amendment Requests (LARs) – (e.g., Online Monitoring, optimized Zirlo Fuel Cladding, etc.)
- DCPD has submitted a number LARs, which are with NRC for review and approval (e.g., Aux Bldg. HVAC TS Completion Time Extension, NEI 99-01 Rev 7, etc.)
- DCPD plans to submit additional LARs over the next few months consistent with industry best practices (e.g., E-Plan rebaseline to NUREG-0654 Rev. 2, standard industry LARs, (e.g., TSTFs), etc.)



DCPP Regulatory Performance

June 2025 – September 2025

- DCPP remains in the highest NRC regulatory performance category
- DCPP continues to provide safe, clean, and reliable electricity to Californians

Thank You

Jordan Tyman
Diablo Canyon Power Plant
Director, Risk & Compliance



Diablo Canyon Power Plant Innovation Update

Jordan Tyman
Director, Risk & Compliance



Artificial Intelligence (AI) Update

Current State

- Diablo Canyon has implemented the Neutron Search AI tool developed in partnership with Atomic Canyon
- Neutron search improves document retrieval capabilities, integrating over 8 document management systems into a single workspace
- Neutron provides enhanced search capabilities and summaries for our co-workers, reducing search times from hours to minutes

Artificial Intelligence (AI) Update

AI Controls and Security

DCPP's AI Platform Maintains Human in the Loop

- Neutron search grounded in NRC database and searches only DCPP documentation with clear sourcing
- Trained specifically for nuclear terminology and documents
- Comprehensive access control and integration with PG&E established IT and cyber processes maintains security
- DCPP has implemented industry and NRC standards and controls
- Neutron does NOT allow autonomous decision-making and does NOT interact with plant safety systems

Artificial Intelligence (AI) Update

Future State

- Evaluating additional use cases to improve DCPD process improvements and integrations
- Future updates to Neutron Search include additional features and functionality

Dynamic Instructions (DI) Update

Current State

- DCCP is implementing Dynamic Work Instructions (DI) (aka Electronic Procedures) to transform procedures
- Dynamic Instructions improves work practices, streamlines procedures and improves human performance
- Integrates with PG&E processes to automate administrative processes (e.g., SAP, records, etc.)
- Currently testing pilot procedure in progress with positive feedback from users



Dynamic Instructions (DI) Update

Future State

- Expanding DI procedures
- Expansion to Work Packages

Thank You

Jordan Tyman
Diablo Canyon Power Plant
Director, Risk & Compliance



AI Safety Considerations

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University of Southern California
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October 22, 2025

With thanks to
Prof Najmedin Meshkati, USC Industrial and Systems Engineering Department
(meshkati@usc.edu)

AI for Decision Making (eg bank loans)



- AI provides a recommendation
- AI can either follow given rules or learns from data
- AI may interact with human to provide explanation
 - * eg justification, drill down, prior cases
- Human makes final decision, using AI recommendation or not

AI in Cyberphysical Systems (eg autonomous driving)



- AI controls operations but human can override
 - * Levels 0 (no autonomy) to 5 (fully autonomous)
- AI has learned before ops from many examples/cases/data
 - * A lot of data is needed to learn
 - "Only six datapoints for human crossing highway"

Foundation Models (eg large language/image models)



- AI has learned from large amounts of data available
- AI optimizes likelihood of generated output
- AI cannot give guarantees of its reliability/quality

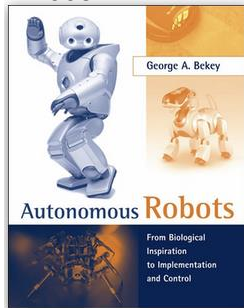
Sociotechnical Systems (eg social media sites)



- AI controls what information people see
- AI optimizes user activity (clicks)
- AI does not track harmful network effects

USC Pioneering Work in AI Ethics

2005



Ethical and social issues in 3 categories:

1. Safety and errors
2. Law and ethics
3. Social impact

2006 Co-existing with Robots

Invited Talk at 2006 IEEE IROS Conference

One of the major developments in robotics in recent years has been their increasing closeness to humans. In this talk we will review three aspects of this trend: **Robots in and on our bodies, robots in the home, and robots in society**. In the latter part of the talk we will discuss some of the emerging psychological, sociological and ethical issues which may arise as a result of this co-existence.

2011

Artificial Intelligence 175 (2011) 942–949

Contents lists available at ScienceDirect

Artificial Intelligence

www.elsevier.com/locate/artint



Robot ethics: Mapping the issues for a mechanized world

Patrick Lin ^{a,*}, Keith Abney ^{b,c,2}, George Bekey ^{a,3}

2014

ROBOT ETHICS

THE ETHICAL AND SOCIAL IMPLICATIONS OF ROBOTICS

EDITED BY

Patrick Lin, Keith Abney,
and George A. Bekey



USC University of
Southern California

84 Documents with AI guidelines (2019)

Table 2 – Ethical principles identified in existing AI guidelines

Ethical principle	Number of documents	Included codes
Transparency	73/84	Transparency, explainability, explicability, understandability, interpretability, communication, disclosure, showing
Justice & fairness	68/84	Justice, fairness, consistency, inclusion, equality, equity, (non-)bias, (non-)discrimination, diversity, plurality, accessibility, reversibility, remedy, redress, challenge, access and distribution
Non-maleficence	60/84	Non-maleficence, security, safety, harm, protection, precaution, prevention, integrity (bodily or mental), non-subversion
Responsibility	60/84	Responsibility, accountability, liability, acting with integrity
Privacy	47/84	Privacy, personal or private information
Beneficence	41/84	Benefits, beneficence, well-being, peace, social good, common good
Freedom & autonomy	34/84	Freedom, autonomy, consent, choice, self-determination, liberty, empowerment
Trust	28/84	Trust
Sustainability	14/84	Sustainability, environment (nature), energy, resources (energy)
Dignity	13/84	Dignity
Solidarity	6/84	Solidarity, social security, cohesion

[illegible]

AI Safety Reports



References

** Denotes that the reference was a report either published by a for-profit AI company or that at least 50% of the authors on a preprint (based on their listed affiliations) work for a for-profit AI company. This classification is based solely on the affiliation data provided in the publications, is for informational purposes only, and should not be considered exhaustive.*

1 R. Simmons-Edler, R. Badman, S. Longpre, K. Rajan, "AI-Powered Autonomous Weapons Risk Geopolitical Instability and Threaten AI Research" in Proceedings of the 41st International Conference on Machine Learning (ICML 2024) (PMLR, 2024); <https://proceedings.mlr.press/v235/simmons-edler24a.html>.

2* OpenAI "OpenAI System Card" (OpenAI, 2024); <https://cdn.openai.com/o1-system-card-20240917.pdf>.

3* OpenAI "GPT-4o System Card" (OpenAI, 2024); <https://cdn.openai.com/gpt-4o-system-card.pdf>.

4* Gemini Team, B. Anil, S. Borgeaud, J.-B. Alayrac, J. Yu, R. Sotirov, J. Schuettli, A. M. Dai, A. Havt, K. Millican, D.

1365 N. Mireshghallah, H. Kim, X. Zhou, Y. Tsvetkov, M. Sap, R. Shokri, Y. Choi, "Can LLMs Keep a Secret? Testing Privacy Implications of Language Models via Contextual Integrity Theory" in ICRL (2024); <https://openreview.net/forum?id=mg78bda6>.

1366 M. Brundage, S. Avin, J. Wang, H. Belfield, G. Krueger, G. Hadfield, H. Khialat, J. Yang, H. Toner, R. Fong, T. Maharaj, P. W. Koh, S. Hooker, J. Leung, A. Trask, E. Blumek, J. Lebensold, M. Anderjung, "Toward Trustworthy AI Development: Mechanisms for Supporting Verifiable Claims," arXiv [cs.CY] (2020); <http://www.org/ai/2004.0723>.



	 Anthropic	 OpenAI	 Google Deepmind	 x.AI	 Meta	 Zhipu AI	 DeepSeek
Overall Grade	C+	C	C-	D	D	F	F
Overall Score	2.64	2.10	1.76	1.23	1.06	0.62	0.37

Domains ○ Hint: Click on a domain to inspect

	Risk Assessment 6 indicators	Current Harms 8 indicators	Safety Frameworks 4 indicators	Existential Safety 4 indicators	Governance & Accountability 5 indicators	Information Sharing 6 indicators	Survey Responses
	C+	C	C-	F	D	F	F
	B-	B	C+	D+	D+	D	D-
	C	C	D+	D+	D+	F	F
	D	F	D-	F	F	F	F
	A-	C-	D	C-	D-	D+	D+
	A-	B	B	C+	D	D	F
	-	✓	-	✓	-	✓	-

Data About AI: Performance, Policy... And Incidents

Artificial Intelligence Index Report 2025



Number of reported AI incidents, 2012–24

Source: AI Incident Database (AIID), 2024 | Chart: 2025 AI Index report

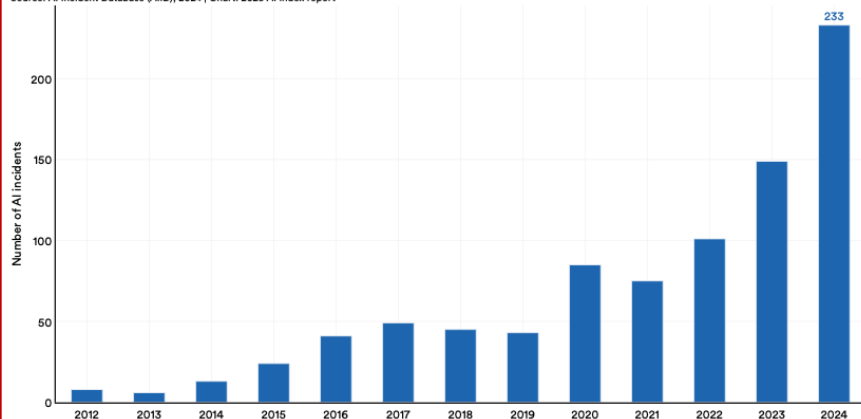


Figure 3.2.1'

Number of state-level AI-related bills passed into law in the United States by state, 2016–24 (sum)

Source: AI Index, 2025 | Chart: 2025 AI Index report

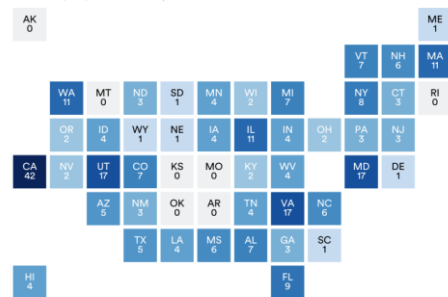


Figure 6.2.8

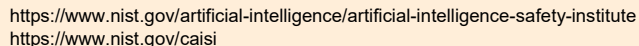
Number of AI-related regulations in the United States by agency, 2016–24

Source: AI Index, 2025 | Chart: 2025 AI Index report



Figure 6.2.20

USC University of
Southern California



<https://www.whitehouse.gov/articles/2025/07/white-house-unveils-americas-ai-action-plan/>

AI for Decision Making (eg bank loans)



- AI can recommend
- AI can follow given rules or learns from data
- AI may interact with human to provide explanation
 - * eg justification, drill down, prior cases
- Human makes final decision, using AI recommendation or not

Some AI legislation

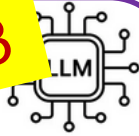
AI in Cyberphysical Systems (eg autonomous driving)



- AI controls operations but human can override
 - * Levels 0 (no autonomy) to 5 (fully autonomous)
 - AI has learned before ops from many examples/cases/data
 - * A lot of data is needed to learn
- "Only six datapoints for human crossing highway"

State level mostly

Foundational AI (eg language/image models)



First state level: CA SB-53

- AI can
- AI can
- AI can

California LEGISLATIVE INFORMATION

SB-53 Artificial intelligence models: large developers. (2025-2026)

Text Votes History Bill Analysis Today's Law As Amended Compare Versions Status Comments To Author

SHARE THIS:

Date Published: 09/29/2025 09:00 PM

Senate Bill No. 53

CHAPTER 138

Sociotechnical Systems (eg social media)



- AI controls what information people see
- AI optimizes user activity (clicks)
- AI does not track harmful network effects

Most AI legislation

The Need for Safety Engineering in AI

- For AI systems, we need to incorporate methodologies from safety engineering for:

- medical devices
- medical practice
- aviation
- transportation
- nuclear energy
- etc.



- AI technologies pose new challenges

- An AI system may change its own behaviors due to learning during operations
- AI technology significantly advances every 2-3 months

Oct 2025

NATIONAL
ACADEMIES Sciences
Engineering
Medicine

NATIONAL
ACADEMIES
PRESS
Washington, DC

<https://doi.org/10.17226/27970>

Machine Learning for Safety-Critical Applications

Opportunities, Challenges, and a Research Agenda



"A key paradigm shift is needed to make ML fit for safety"

ML algorithms, however advanced, are only components of an overall system, and integrating an ML-based component into a larger system raises many engineering challenges. The ML research community has focused almost entirely on the performance of ML components in isolation. Therefore, a key paradigm shift in research is needed to make ML “fit for safety” by addressing additional capabilities required to integrate ML components into safety-critical systems. This includes research to improve the following qualities of the ML component:

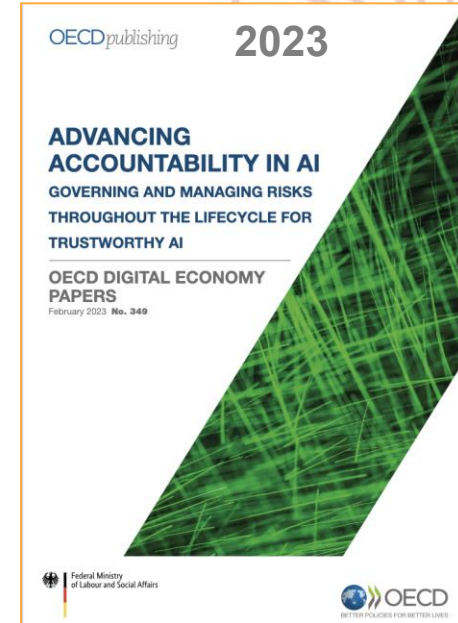
- *Uncertainty quantification*: Ability to quantify predictive uncertainty for individual inputs such that if uncertainty is low, high levels of accuracy can be guaranteed; and if uncertainty is high, mitigations must be engaged.
- *Traceability and explanation*: Ability to trace the cause(s) of a system output error back to either the relevant training data or to violations of the operational domain.
- *Competence modeling*: Ability to detect when an input lies outside the domain of competence of the trained subsystem. For example, the perceptual system of a medical diagnosis system should detect when the X-ray image exhibits some novel phenomenon (e.g., a new disease) that the system has not been trained to recognize.
- *Robustness*: Ability to create learned components that can perform accurately in the presence of a known range of perturbations or disturbances in the input.

"Foundation models performance falls short of safety standards"

Foundation models (FMs), a recent development in ML, exhibit a versatility that could be advantageous in safety-critical settings, especially in applications where challenges and contexts can vary. These are models with billions of parameters trained on immense data sets that can be fine-tuned on task-specific data to achieve high performance in narrow applications. FM's breadth of knowledge can also provide valuable support for human-machine interactions. Large language models (LLMs), a type of FM, have also been shown to be effective at translating natural language specifications to formal machine specifications, potentially significantly advancing human-machine interaction and teaming. On the other hand, FMs are not without their own major shortcomings. The sheer scale of FMs' training data, and of the model itself, have made it thus far virtually impossible to support explainability and traceability—key attributes in safety system development. Researchers have also shown that LLMs can exhibit highly problematic behaviors from a safety perspective such as hallucination (generating false results) and sycophancy (results influenced by the user's perceived desires)—and that they can be intentionally manipulated. Therefore, while FMs hold immense potential, at present their performance falls short of safety standards and should be carefully considered when used in safety-critical systems.



<https://www.nist.gov/itl/ai-risk-management-framework>



<https://doi.org/10.1787/2448f04b-en>

NIST: AI Risk Management Activities



After instituting the outcomes in GOVERN, most users of the AI RMF would start with the MAP function and continue to MEASURE or MANAGE. However users integrate the functions, the process should be iterative, with cross-referencing between functions as necessary. Similarly, there are categories and subcategories with elements that apply to multiple functions, or that logically should take place before certain subcategory decisions.

Fig. 5. Functions organize AI risk management activities at their highest level to govern, map, measure, and manage AI risks. Governance is designed to be a cross-cutting function to inform and be infused throughout the other three functions.

- Incorporate AI systems into existing safety eng. processes, extend when needed
 - Do not wait for regulations and policy for AI in order to do the right thing
 - Adopt and adapt the NIST AI Risk Management Framework
- Develop metrics and measures for AI systems under consideration
 - Evaluate in operational context, in addition to any technical evaluation
- Develop and adopt a "Combined Readiness Level" rating
 - Technology Readiness Level (TRL): focus on technical system
 - Human Readiness Level (HRL): focus on human operator ability to use system
 - Combined Readiness Level (CRL): proposed CRL should focus on "AI-human system" operation
- Review every few months





Per F Peterson, Member, & Ferman Wardell Consultant

- 1. Reactivity Management Program Update**
- 2. Operating Experience Program Update**
- 3. Maintenance Rule Functional Failures**
- 4. Meeting with Nuclear Regulatory Commission Resident Inspectors**
- 5. Auxiliary Building Ventilation System**
- 6. Electronic Procedures**
- 7. Reports to NRC on 2024 Radiation Releases and Radioactive Environmental Monitoring**
- 8. Workplace Seismic Safety**
- 9. Artificial Intelligence Program Update**
- 10. Plant Update Since May 2025 Fact-finding Meeting**
- 11. Independent Spent Fuel Storage Installation (ISFSI) Update**



Reactivity Management Program Update

- The fission process generates neutrons, which generate more neutrons – chain reaction.
- Reactivity: Fractional change in neutron population from one neutron generation to the next, or the measure of departure from criticality.
- It is a measure of the potential for a nuclear core to increase or decrease in its chain reaction or rate of power change.
- Reactivity important to control for control of the reactor.
- Operators initially responsible for directly controlling reactivity.



The Reactivity Management Leadership Team (RMLT) is a team of individuals representing Operations Services, Maintenance Services, Engineering Services, Learning Services, and the Corrective Action Program. The team reviews reactivity events and adverse trends to identify needed corrective actions and recommend additional training or qualification for groups that can affect reactivity.

Significance Level Plant Impact Description

- | | |
|----------|---|
| 1 | Highest Fundamental Organizational Breakdown |
| 2 | Violation of Design or Licensing Basis |
| 3 | Violation of Process/Procedural Requirements |
| 4 | Precursor |
| 5 | Lowest Concern |
| 6 | None No impact. Trending purposes only (Continued) |

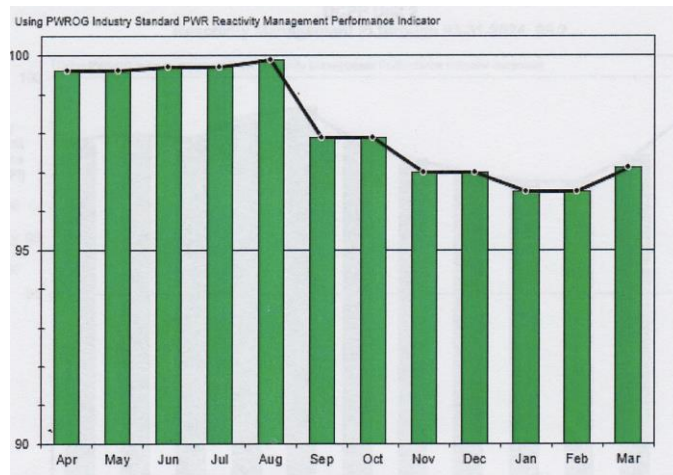


Reactivity Management Update, Continued

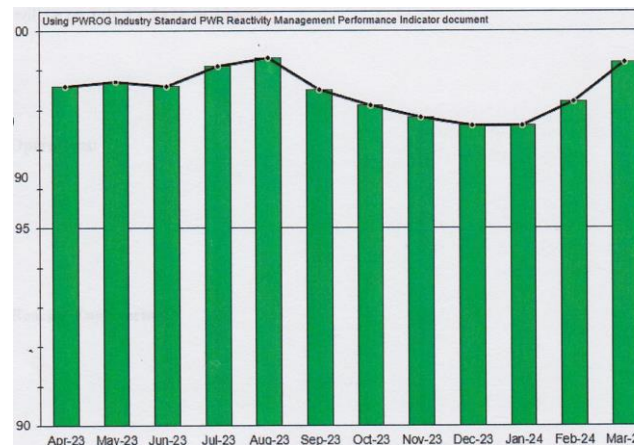
DCPP has tight RMP procedure – follows it strictly

DCPP RMP Measures are Positive – Safe Trends

Unit 1.



Unit 2



Conclusions: DCPP RMP Program is conservative with safe measures.

Recommendations: None



Operating Experience Program Update

- **Procedure OM4.ID3, “Operating Experience Program,” Copy of which was provided to the Fact-finding Team.**
 - **Program is managed by two persons, the station OE Coordinator and the OE Coordinator’s Backup.**
 - **Industry OE information comes from two primary sources: 1) the Institute of Nuclear Power Operations (INPO) Industry Reporting and Information System (IRIS), NRC, industry vendors, international databases, peer committees, engineering**
- (Continued)**



Operating Experience Program Update, continued

- **DCPP receives 15 to 20 OE event reports per week. These OE Reports are entered into an OE Database for tracking.**
 - **Information considered to be relevant to DCPP is transmitted to DCPP department Subject Matter Experts (SMEs) typically, from Operations, Maintenance, or Engineering**
 - **If the OE event is determined to be applicable to DCPP, the SME creates a Corrective Action Program Notification (SAPN) in DCPP's SAP information management system to initiate and track further actions.**
- (Continued)**



Maintenance Rule Functional Failures

- **DCPP's Maintenance Rule (MR) Program is governed by procedure MA1.ID17, "Maintenance Rule Monitoring Program," governed by NRC**
- **SSCs are evaluated according to risk significance determination**
- **Risk-informed performance criteria are established to discern whether or not preventative maintenance activities are effectively implemented**
- **SSCs routinely monitored against the established performance criteria**
- **MPFF is defined as, "a failure that could have been prevented by the performance of appropriate maintenance."**
- **Conclusions: DCPP appears to have implemented the Maintenance Rule appropriately and effectively.**



Electronic Procedures

- In 2023 DCPD tried implementing less complex procedures & work packages
- Enough implementation issues that DCPD temporarily dropped the effort.
- Now, after recent benchmarking, DCPD will again begin implementation
- Starting with its Operations Procedures in 2025 using a
- Platform from Next Axion, one used by several other plants.
- This platform integrates well with SAP, the software platform DCPD currently uses for data management
- Proven itself well enough for DCPD to begin its use.
- The platform is used with Apple iPads.

Conclusion: DCPD is proceeding with converting its operations procedures to electronic versions with the expectation that they will provide positive results, especially in reducing human errors and ease of data and record keeping.



Meeting with NRC Senior Resident Inspector

The participants discussed the following items:

- **DCPP operating history since the last fact-finding meeting in May 2025.**
- **Upcoming refueling outages**
- **Workplace seismic safety**
- **Recent NRC inspections**
- **July 4, 2025 down-power due to offsite fires**
- **Upcoming NRC inspections**

Conclusion: The meeting with the NRC Resident Inspectors was beneficial, and the DCISC should continue the meetings



(P12/24FF-3.2) Recommendation to PG&E: SB 846 requires the DCISC to “make recommendations appropriate to enhance the safety of the operation at the Diablo Canyon powerplant.” The DCISC recommends that PG&E expand their use of electronic-procedure-type applications, subject to proper human systems integration, because the improved human performance and documentation of work can directly improve the safety of DCPD operation.

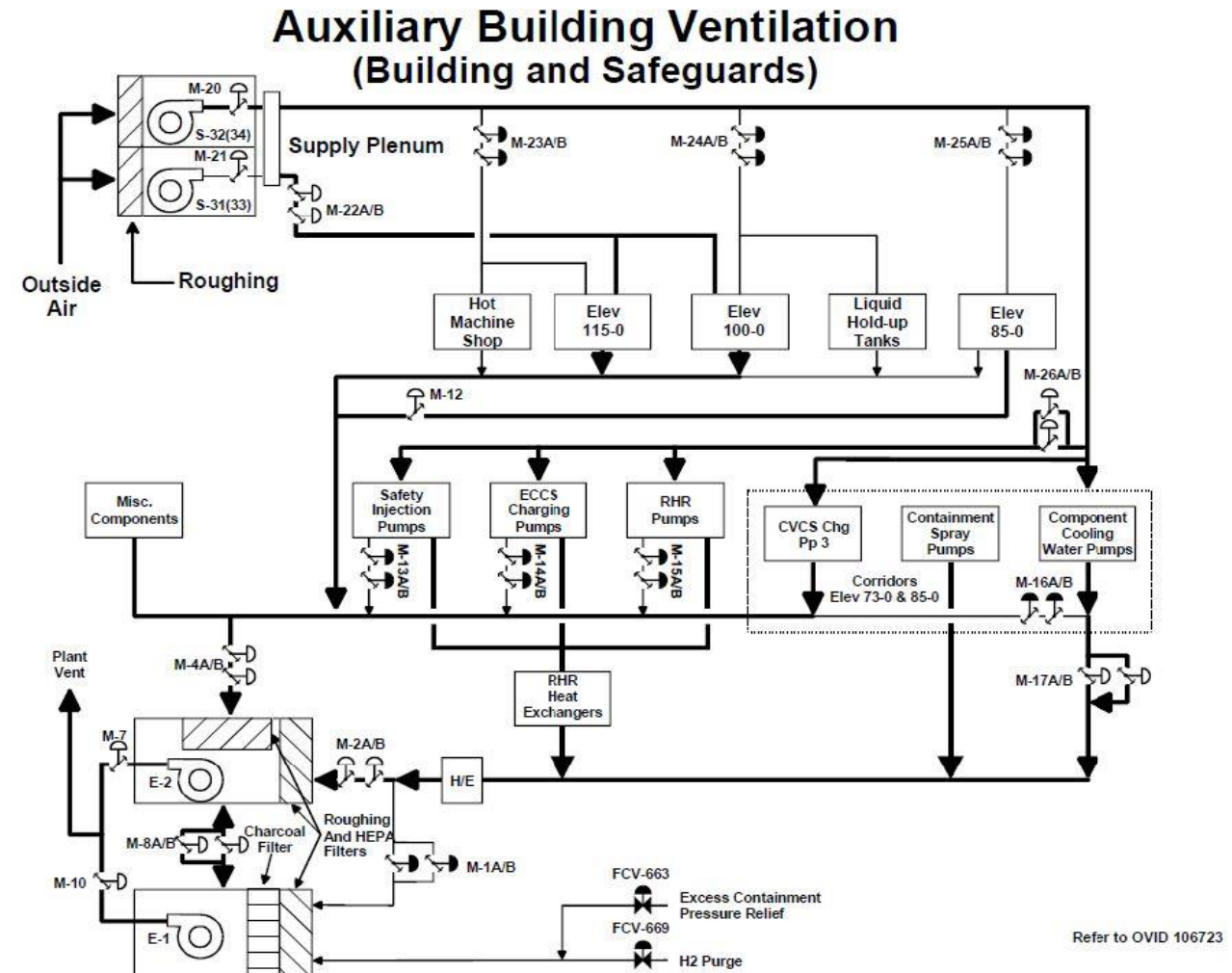


Auxiliary Building Ventilation System

- The ABVS consists of fans, dampers, ducting, and filters whose function is to supply, heat and/or cool, filter, and discharge air for the Auxiliary Building. The ABVS provides cooling and/or heating for both personnel and equipment, including several components of the Engineered Safety Feature System.
- The ABVS consists of two 100% supply fan units with roughing filters and two discharge fan/filter units with roughing, HEPA filters, and charcoal filters, along with extensive ducting throughout the building.
- DCPD currently swaps trains every two weeks to reduce wear and tear on the components.



- Because there is potential for radioactive particulates and gases to enter the ABVS, the system is equipped with radiation monitors to preclude inadvertent releases via the Plant Vent.
- A simplified system diagram is shown right:





Reports to NRC on 2024 Radiation Releases and Radioactive Environmental Monitoring

Direct Radiation

Due to the terrain surrounding the plant, DCPD has no offsite direct radiation receptors with significant occupancy. Therefore, a bounding value for dose from direct radiation has been calculated for a receptor location that is onsite and close to both the sources and the nearest site boundary. Evaluation has been detailed in Section VII E.3. Note that calculated doses from direct radiation have all been well below 40 CFR 190 limit of 25 mrem/year.

Receptor	Sources of Direct Radiation	2024 (total)	2023 (total)	2022 (total)
Make-up Water Reverse Osmosis Operator	Warehouse A, ISFSI, Onsite Storage Casks, Old Steam Generator Storage Facility	6.7 (1) mrem	5.7 mrem	4.6 mrem

(1) The increase in 2024 reverse osmosis operator dose is from fuel movement during the 2024 ISFSI campaign.



Executive Summary (continued)

Liquid Effluents:

Three-year summary of radioactive liquid releases to the environment

Liquid Waste	2024	2023	2022	Comments
Total Activity Excluding Tritium (Ci)	2.30E-02	1.70E-02	1.66E-02	1
Tritium Activity (Ci)	1582	2530	2590	2
Total Body Dose (mRem)	2.17E-4	5.71E-04	2.75E-04	3
Total Volume of Primary Liquid Waste Released (liters)	6.09E+06	7.10E+06	8.35E+06	



Overall, the liquid and gaseous radioactivity releases from DCPP were well-controlled and maintained as low as reasonably achievable. The 2024 results from DCPP were well below all applicable limits for liquid and gaseous releases, and there were no abnormal or uncontrolled releases during 2024.

<u>Effluent Type</u>	<u>Calculated Radiation Dose</u>	<u>Percent of ODCM Limit</u>
Liquid	0.000285 millirem	0.0095%
Gaseous	0.000549 millirem	0.000366%



Conclusion:

The results of the 2024 REMP showed no unusual environmental isotopic findings from DCCP site operations. These results were compared to DCCP preoperational isotopic data and showed no unusual trends.

The annual offsite radiological dose received by the general public from plant operations was less than one millirem which is insignificant when compared to the 620 millirem average annual radiation exposure to people in the United States from natural and man-made background radiation sources (cosmic, terrestrial, radon, medical, etc.).



DCISC FFT met the Plant Manager, for an update of activities and operations since the last DCISC fact-finding meeting in May 2025. The update included results of the just-completed successful Unit 1 refueling outage and plans for the similar upcoming Unit 2 refueling outage. It reported on the operating status during the last month, significant activities during June, and INPO and NRC visits coming up.

Conclusions: The plant status and operating update since the previous DCISC Fact-finding meeting was informative and useful.



Workplace Seismic Safety

Following the identification of the unbraced cabinet during the DCISC's last review in July 2024 and upon entering the issue into the Corrective Action Program, corrective actions were made. These included adding proper bracing to the cabinet, improved training/awareness for personnel on workplace seismic safety and reviewing other installations for extent of condition.

However, in the December 12, 2024 meeting with the DCP Senior Vice-President and Chief Nuclear Officer, a tall, unbraced cabinet was found in her office, that had not been found in previous inspections or extent of condition reviews. This unbraced cabinet was quickly entered into the Corrective Action Program. The SVP advised the FFT that this cabinet would soon be moved to the other side of her office per a previous request that her office be rearranged. A Corrective Action Program Notification was quickly initiated for corrective action.



Workplace Seismic Safety, Continued

Conclusion:

Concern: DCPD is not implementing its workplace seismic safety procedures consistently. The DCISC considers workplace seismic safety to be important to plant seismic safety, because it affects the safety and availability of plant personnel to respond to seismic events and to implement post-earthquake procedures including FLEX responses if needed. DCISC is treating this as a Concern, because DCPD has recognized the problem and will be taking corrective actions.



Workplace Seismic Safety

The DCISC Fact-finding Team, accompanied by two DCPD employees, found no furniture or shelving unbraced or unweighted which would cause a hazard to personnel during or following an earthquake.

Recommendation to PG&E P12/24FF-3.8): PG&E should review why an extension of condition for an unbraced cabinet found by the DCISC in July 2024 did not prevent the identification of a similar condition by the DCISC in December 2024 *(This recommendation was subsequently completed and closed in this period.)*



Independent Spent Fuel Storage Installation (ISFSI)

- **Concern/questions from member of public on Stress Corrosioin Cracking in ISFSI Stainless Steels Canister Where Rust Appears**
- **PG&E and Canister Inspection Vendor Investigated**
- **Responses Developed and Reviewed in DCISC September FF Meeting**
- **Will Be Reported in September FF Report**



Per F Peterson, Member, & Ferman Wardell Consultant

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- 9. Workplace Seismic Safety**
- 10. Artificial Intelligence Program Update**
- 11. Plant Update Since May 2025 Fact-finding Meeting**
- 12. Independent Spent Fuel Storage Installation (ISFSI)**



Robert Budnitz and Richard McWhorter, Consultants
Raluca Scarlat, Member (Remotely Participating in Part)

1. Institute of Nuclear Power Operations Mid-Cycle Assessment
2. Unit 2 Power Reductions in Response to Area Wildfires
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Institute of Nuclear Power Operations (INPO) Mid-Cycle Assessment

- **Last Site Evaluation [World Association of Nuclear Operators (WANO) Peer Review] Completed August 2024**
- **Plants Perform Self-Assessments in Intervening Years Between Evaluations**
- **PG&E Self-Assessment Completed in Summer 2025. Closed Three Areas for Improvement from August 2024 Evaluation and Opened Two New Concerns**
- **Next Site Evaluations – INPO Continuum in Summer 2026; Full WANO Peer Review in 2028**

Conclusion: DCCP satisfactorily completed its Mid-Cycle Self-Assessment which was performed as a part of programs overseen by the Institute of Nuclear Power Operations.



Unit 2 Power Reductions in Response to Area Wildfires

- **Context – DCPD's Special Protection System Trips One Unit if Two of Three 500kV Lines Lost and Total Plant Output Greater Than 1,700 MWe**
- **Two Fire Events Threatened Two 500kV Lines**
 - **July 4 – Madre Fire; Unit 2 Power Reduced to ~47% for Two Days**
 - **August 4 – Gifford Fire; Unit 2 Power Again Reduced to ~ 47% for 11 Days**
- **Decisions Made in Collaboration with Other PG&E Entities (Grid Control Center, Transmission Group, Hazard Awareness Warning Center, etc.)**

Conclusion: DCPD twice took action to reduce Unit 2 power levels to preclude the possibility of incurring an automatic unit trip initiated by the Special Protection System if multiple 500kV transmission lines were lost during local wildfire events. These decisions were proactive and reflected a conservative approach by station leadership in making major decisions.



Single Point Vulnerabilities

- Follow Up Discussion from August 2025 Fact-Finding Meeting
- Current Initiatives
 - Industry Event Report 21-04, “Improving Plant Reliability”
 - Significant Operating Event Report 25-01, “Improving Equipment Reliability in Nuclear Facilities”
 - Benchmarking Other Nuclear Power Plants

Conclusion: DCCP’s Single Point Vulnerability Program was being managed well under plant processes and procedures, and it is now considered a part of DCCP’s broader programs to foster high Equipment Reliability.



Spent Fuel Canister Corrosion

- **DCISC Received Inquiry Regarding Its Planned Follow-Up Activities to the 2021 Inspection of Spent Fuel Storage Multi-Purpose Canisters (MPCs)**
- **Most Questions Related to the Adequacy of the 2021 Inspections in Detecting Corrosion that Could Lead to Stress Corrosion Crack Development**
- **Questions (11) Referred to PG&E; Response Received September 12, 2025 (Enclosure 1 to Report)**
- **Discussed Answers and Requested Clarifications and Additional Information**
- **Revised Response Received October 7, 2025**



Spent Fuel Canister Corrosion (continued)

Conclusion: DCPD provided responses to questions and concerns received by the DCISC from a member of the public regarding methods used to inspect Spent Fuel Multi-Purpose Canisters for corrosion. Additional information was requested during this Fact-Finding Meeting, and the DCISC should review the additional information (following its receipt) during a future Fact-finding Meeting.

Recommendation: The DCISC should follow up at a future Fact-Finding Meeting with additional review of PG&E's responses to questions and concerns regarding methods used to inspect Independent Spent Fuel Storage Facility Multi-Purpose Canisters for corrosion. (D9/25FF-3.4)



Root Cause Evaluation for Auxiliary Saltwater Pump Motor Failure

- **Failure of ASW Pump 2-2 Motor Bearing in Fall 2023; Repeat of 2018 Failure**
- **Issue of Procedure Guidance and Methods for Setting Axial Pre-Loading**
- **Follow-up From DCISC Reviews in December 2023; May and November 2024**
- **New Procedure Changes Were Sufficient and Validated by Use During Overhaul**
- **Notification on Why 2018 Procedure Changes Were Ineffective Remained Open During Last DCISC Review in April 2025**
- **Corrective Actions Now Completed – Future Procedure Changes Driven by Root Cause Evaluations (RCEs) Will Require a Review by a Member of the RCE Team Before Being Considered Satisfactorily Completed.**



Root Cause Evaluation for Auxiliary Saltwater Pump Motor Failure (continued)

Conclusion: PG&E completed evaluations regarding why procedure changes made as a result of a 2018 Root Cause Evaluation for an Auxiliary Saltwater Pump motor bearing failure were not sufficiently effective to prevent the recurrence of a similar issue in 2023, and appropriate changes to the Corrective Action Program were initiated.

Recommendation: The following previous recommendation to PG&E was reviewed in this Fact-Finding Meeting and is recommended for closure: *PG&E should continue to evaluate why a 2018 Root Cause Evaluation for a failed Auxiliary Saltwater Pump motor bearing did not result in sufficiently effective procedure changes (P11/24FF-3.11).*



Refueling Outage 2R25 Update and Safety Plan

- **Update on 2R25 Schedule and Scope**
- **Reviewed Outage Safety Plan and Safety Schedule**

Conclusion: DCCP's preparations for Refueling Outage 2R25 appeared to be progressing satisfactorily.



Transmission System

- 500kV System in Good Health, Some Minor Problems with Insulators
- Project to Replace Analog Relays with Digital Relays in 500kV Switchyard in Progress (Phase 3 of 4 in 2R25)
- 230kV System in Good Health.
- Projects to Replace Switchyard Breakers with SF₆ Breakers and Analog Relays with Digital Relays Planned for 1R26 and 2R26
- Transmission System Stability Has Recently Been Good at DCPD
- Also Discussed “Grid Inertia”

Conclusion: The 230kV and 500kV Transmission Systems at DCPD were both in good health with no major issues. Projects are being implemented to upgrade breakers and relays in the DCPD switchyards.



Observe Readiness Review Board Meeting

- **Meeting's purpose was to review the scheduling and sequence of outage windows during secondary plant shutdown at the start of the upcoming Refueling Outage 2R25 and secondary plant startup at the end of the outage.**
- **Meeting Well Facilitated and Discussions Appeared Open and Effective**

Conclusion: A September 16, 2025, Readiness Review Board meeting was conducted efficiently and effectively. Representatives from various departments focused on ensuring that outage secondary system shutdown and startup activities were appropriately scheduled.



Station Update

- **Station Update:**
 - **Power Production**
 - **Preparations for Refueling Outage 2R25**
 - **Recent Major Maintenance Activities**

Conclusion: DCP's update on recent station activities was informative, and no new major issues were identified.



Discussions of Seismic Review Team Recommendations

- **Report Documents Three Meetings Held with PG&E Relative to the Seismic Review Teams (SRT' s) Work and Recommendations**
- **August 19, 2025 – Dr. Oskin (from the SRT) Joined PG&E Staff and Independent Peer Review Panel to View Field Orcutt Formation Features in Southern Santa Maria Basin (Enclosure 2 to Report)**
- **September 10, 2025 – SRT Met with PG&E Staff and Consultants in Palm Springs, CA, to Provide PG&E an Opportunity to Ask Questions and Receive Additional Information from the SRT Regarding its May 2025 Report and Its Recommendations. Dr. Meshkati and Consultants McWhorter and Kadak also Attended.**



Discussions of Seismic Review Team Recommendations (continued)

- **September 17, 2025 – Consultants Budnitz and McWhorter Met to Discuss the SRT Report Recommendations with PG&E**
- **Consultants Also Reviewed the Potential Significance of the SRT Report's Recommendations to Current Evaluations of the Overall Seismic Hazard at DCP**
 - **PG&E Believes It Is Unlikely that There Will Be a Large Impact Overall Coming From Any Changes to Southwest Boundary Zone Sources**
 - **Hosgri Fault System Is By Far The Largest Contributor to Overall Plant Risk and That Predominance is Very Unlikely to Change**

Conclusion: Information gathered in the meetings will be used to inform the DICSC's decisions as to how to disposition those recommendations in upcoming public meetings and PG&E's future responses to the recommendations.



Meet with DCPD Director

- Tom Jones, Regulatory, Environmental and Repurposing Senior Director
- Discussed the Fact-Finding Agenda Items and Other Items of Mutual Interest

Conclusion: The regular meetings between DCISC and DCPD Officers and Directors continue to be beneficial for both organizations.



Emergency Diesel Generators

- Both Units – Healthy (Green) with minor issues being addressed
- Projects in Progress to Upgrade Fuel Oil Day Tank Level Switches and ‘GDQ’ Alarm Relay Panels
- EDG Reliability and Availability Have Remained Good Over the Past Two Years.
- Major Maintenance Activities Completed on All Six EDGs In Last 12 Months
- Two Failures Occurred During Testing Following Maintenance
 - July 22, 2025, EDG 2–3 Tripped on Overspeed – Governor Linkage Cotter Pin Caught on Lockbolt (Configuration Unique to EDG 2–3)
 - September 5, 2025, EDG 2–2 Jacket Water Pump Minor Seal Leak When Operating (0.3 gph)



Emergency Diesel Generators (continued)

- Discussed Operability Determination and Mission Time for the EDG 2-2 Jacket Water Pump Seal Leak
- Received Documents Post-Meeting Explaining the Basis for the Mission Time, but Additional Follow-up Discussions are Recommended

Conclusion: The Health of DCCP's Emergency Diesel Generators for both units were rated as Green (Healthy) with no major equipment issues. Two equipment failures that recently occurred during post-maintenance tests were being effectively addressed via the Corrective Action Program, and the DCISC had additional questions regarding the mission time used in an operability evaluation for Emergency Diesel Generator 2-2.



Emergency Diesel Generators (continued)

Recommendation: The DCISC should further review DCPD's basis for developing mission times used in an operability determination for a jacket water pump seal leak on Emergency Diesel Generator 2-2. (D9/25FF-3.12)



Plant Tour

- Unit 2 Turbine Deck (119' Elevation)
- Unit 2 Turbine Building (85' Elevation), Secondary Plant Support Systems
- Unit 2 Turbine Building (85' Elevation), Emergency Diesel Generator Rooms 2-2 and 2-3

Conclusion: A tour of two Unit 2 Emergency Diesel Generator Rooms found them to be clean and orderly with equipment in good condition.



Dr. Budnitz and Mr. McWhorter at Unit 2 Generator



**PG&E Engineer and
Dr. Budnitz at EDG 2-2**



Robert Budnitz and Richard McWhorter, Consultants
Raluca Scarlat, Member (Remotely Participating in Part)

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Review of the Bird Critique

Seismic Review Team

Thomas H. Jordan

Professor, Department of Earth Sciences, University of Southern California

Michael E. Oskin

Professor, Earth and Planetary Sciences Department, University of California Davis

Scott T. Marshall

Professor, Department of Geological and Environmental Sciences, Appalachian State University

Diablo Canyon Independent Safety Committee Public Meeting

June 10, 2025

The Bird Critique

Dr. Peter Bird has argued in a series of filings to the DCISC, CPUC, and NRC that the seismic hazard from one or more thrust faults beneath DCPD has been underestimated by PG&E.

Four main assertions of the Bird critique

- a. PG&E has underestimated the hazard to DCPD from thrust faulting under the Irish Hills because it made four false modeling assumptions.
- b. Three independent methods give 2.0-2.8 mm/yr for the total slip rate on shallow-dipping thrust faults under the Irish Hills.
- c. The 2024 Noto Peninsula earthquake is a good analog for a large thrust event beneath the Irish Hills.
- d. Recurrence interval of a Noto24-type earthquake involving Irish Hills thrust faulting is 715-1000 yr.

Documents Reviewed by the SRT

- Bird critique: *High Seismic Hazard and Risk at Diablo Canyon Power Plant Due to Thrust Faulting Under the Irish Hills* (27 pp, 10/30/24)
 - *SRT Review of the Bird critique* (98 pp, 05/30/25)
- Bird response: *Technical Response to the Review of the Bird Critique with Recommendations for Further Actions* (13 pp, 06/06/25)
 - *SRT Review of the Bird Response of 06/06/25* (30 pp, 08/16/25)
- Curran-Bird letter: *Follow-up to June 10, 2025, DCISC Meeting* (4 pp., 06/26/2025)
 - *SRT comments on 06/26/25 letter by San Luis Obispo Mothers for Peace* (7 pp., 09/22/25)

Outline of Presentation

- Summary of the 05/30/25 SRT report
 - Overall assessment of the Bird critique
 - Findings and recommendations regarding the PG&E SSC model
- SRT review of the 06/06/25 technical response by Dr. Bird
 - Gravimetric analysis
 - Fault system analysis
 - Geodetic analysis
 - Noto24 earthquake as analog
- SRT comments on 06/26/25 SLOMFP letter

Overall Assessment of the Bird Critique

Four main assertions

- a. PG&E (2015, 2024) underestimated the hazard to DCPD from thrust faulting under the Irish Hills because it made four false assumptions. Removing these assumptions increases the thrust-faulting potency rate by a large factor.

SRT finding: *Removing the four false assumptions in the development of a revised SSC would have little to no impact on the hazard estimates.*

Overall Assessment of the Bird Critique

Four main assertions

- b. Three independent analytic methods give values for the total slip rate on shallow-dipping thrust faults under the Irish Hills in the range of 2.0-2.8 mm/yr.

SRT finding: *Current slip rate of the SWBZ thrust faults under the Irish Hills is estimated to be 0.29 ± 0.07 mm/yr, an order of magnitude smaller than Bird's estimates.*

Overall Assessment of the Bird Critique

Four main assertions

- c. The 2024, Noto Peninsula (Japan) earthquake (M7.5) is a good analog for a large thrust event beneath the Irish Hills.

SRT finding: *A Noto24-type earthquake is not suitable as a characteristic earthquake for thrust faulting beneath the Irish Hills.*

Overall Assessment of the Bird Critique

Four main assertions

- d. The recurrence interval of Noto24-type earthquakes involving Irish Hills thrust faulting is 715-1000 yr, which poses an unacceptable risk to DCP.

SRT finding: *If Noto24 were adopted as the characteristic event for the Irish Hills, the estimated recurrence interval would be 17 to 33 times longer than Dr. Bird's estimates*

Overall Assessment of the Bird Critique

SRT finding

The best available science does not support the four main assertions of the Bird critique.

Summary of Recommendations

The SRT recommends:

1. Development of a set of kinematically constrained structural models for reverse faults underlying the Irish Hills that can explain the folding observed since 5 Ma.
2. Dating of low-stand abrasion platforms offshore, south of the Irish Hills, to further constrain the rate of footwall subsidence and its contribution to the SWBZ slip rate.
3. Monitoring of IRSL-dating efforts and reassessment, if necessary, of the MIS 5 age assignments for the Q1 and Q2 terraces surrounding the Irish Hills.
4. Further investigation of potential strike-slip faulting along the Los Osos trend and its impacts on the pattern of marine-terrace uplift.

Summary of Recommendations

5. PG&E should follow up the SRT's preliminary work with a more complete study of the available GPS data.
6. The fault slip models that underlie the DCPD SSC should be developed into kinematic and mechanical models that can predict the interseismic deformation and can thus be directly tested against the GPS data.
7. PG&E should compute the transpressional ratios for the SSC24 slip models and compare the values with the geodetic constraints.
8. Geologic slip-rate information should be acquired from the Rinconada and Huasna faults to permit better modeling of the shear component evident in the GPS data.

Summary of Recommendations

9. PG&E should conduct modeling experiments to ascertain the sensitivity of DCPD hazard to the SSC modifications recommended by the SRT

- Decrease the mean dip of the SWBZ faulting to agree with the observed average ($38^\circ \pm 3^\circ$)
- Reweight FMGs to favor the SW-Vergent model over the NE-Vergent and Outward-Vergent models
- Reevaluate the hazard of the Los Osos trend

Outline of Presentation

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 - Noto24 earthquake as analog
- SRT comments on 06/26/25 SLOMFP letter

Isostatic and Gravimetric Analysis

Bird critique: Active thrust faulting must explain not only the 0.2 mm/yr uplift rate of the Irish Hills but also a crustal thickening rate about six times larger

- Assumes Airy isostasy, where local topographic height is balanced by local Moho depth
- Implies crustal thickening rate is 6 times the uplift rate

SRT review: Airy isostasy cannot be applied to loads of as small as the Irish Hills

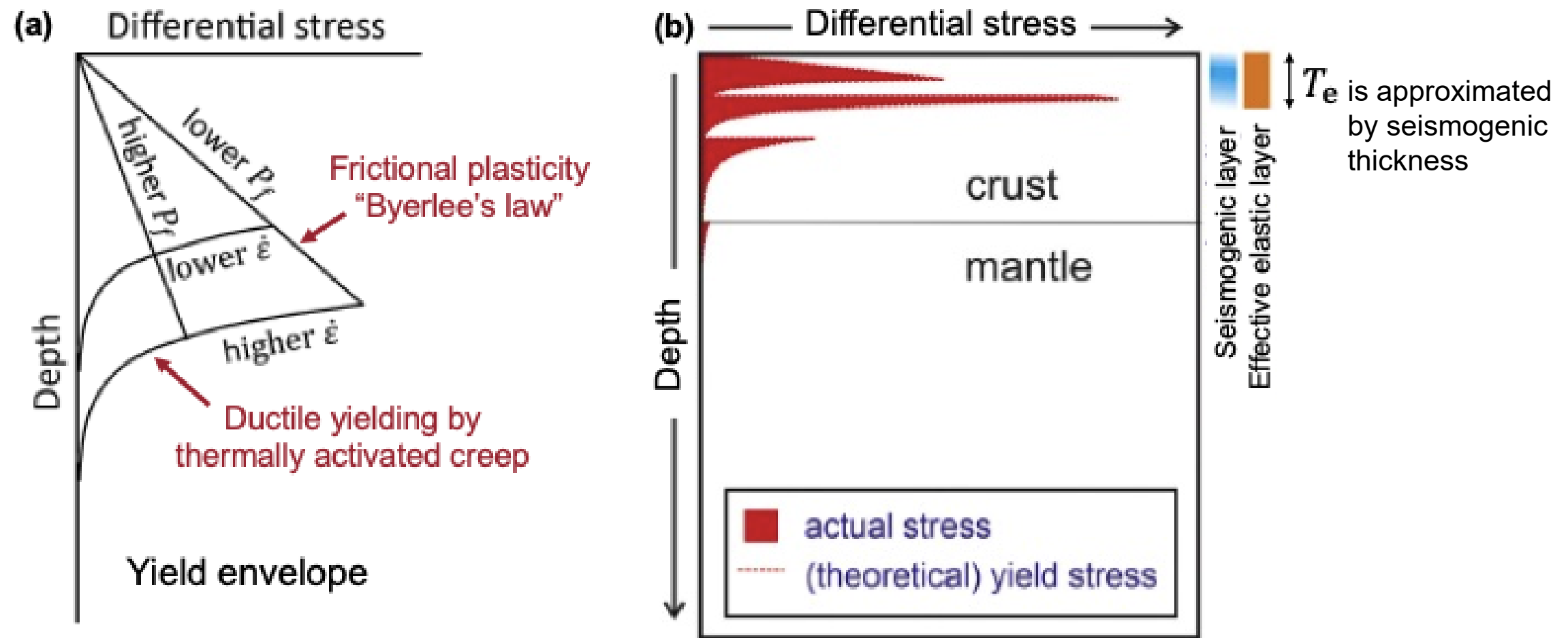
- Loads are supported by lithospheric rigidity (regional compensation), parameterized by an effective elastic thickness $T_e \approx$ seismogenic thickness ≈ 10 km
- Implies a bending wavelength of ~ 200 km
- Dimension of the Irish Hills is ~ 20 km is much less than 200 km
- But Airy isostasy requires the load dimension to be much greater than 200 km

Isostatic and Gravimetric Analysis

- SRT assertion: The elastic plate thickness T_e can be approximated by the thickness of the seismogenic zone (~ 10 km).
 - Observed by Maggi et al. (2000) and Hyndman et al. (2009)
- Bird objection: “[The SRT’s regional compensation] model is untenable... Any seismogenic layer has reached the levels of deviatoric stress at which frictional plasticity dominates the strain-rate, so it no longer ‘elastic’... Although the SRT cite simple analytical models for the bending of an elastic layer over a fluid half-space, I am not aware of any solutions for a frictional-plastic layer.”
- SRT reply: Frictional-plastic models are well developed and routinely used in regional compensation analysis, and they support the SRT assertion

Isostatic and Gravimetric Analysis

- SRT assertion: The elastic plate thickness T_e can be approximated by the thickness of the seismogenic zone (~ 10 km).
 - Ellis & Wang (2022) frictional-plastic model consistent with the SRT assertion



Fault System Analysis

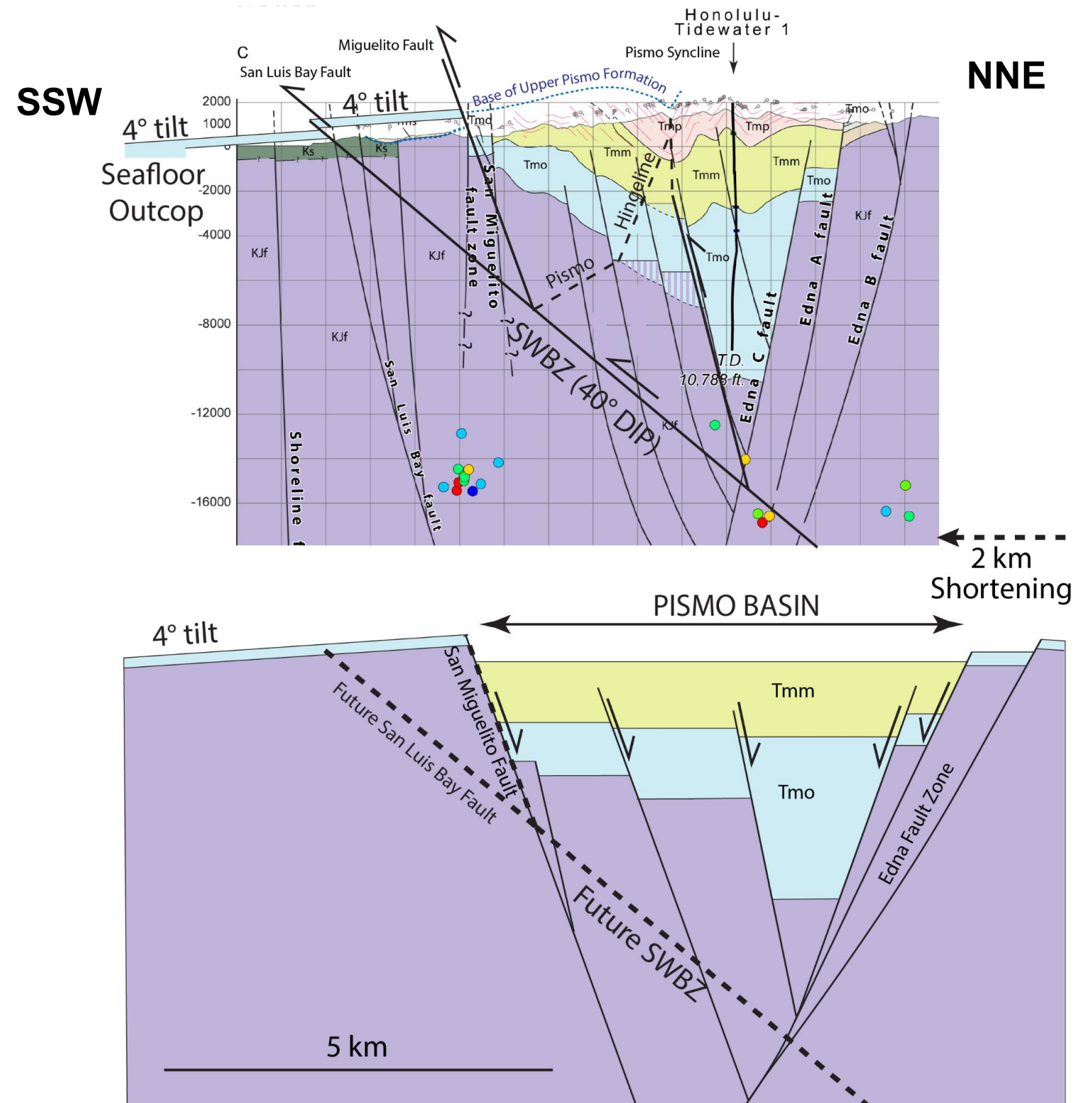
Mike Oskin

Fault System Analysis

- SRT assertion: “Thrust offset is one possible mechanism to explain the offset of the Obispo formation across the SWBZ. There are other possible mechanisms to produce the offset of the Obispo formation, including normal faulting during Miocene extension.”
- Bird objection: “The present disposition is that Tmo [Obispo Formation] is higher on the NNE side of the SWBZ and lower on the SSW side. If that is to be explained by Miocene normal faulting, then the Miocene normal fault would have to lie within the bracket of these two offset outcrops, and it would have to dip SSW. No such normal fault has been mapped .”

Fault System Analysis

- Bird objection: “The Miocene normal fault... would have to dip SSW.”
- The Pismo basin is a rift basin formed by normal faulting.
- Thinning causes flexural uplift of adjacent areas.
- Gentle tilting or non-deposition upon uplifted footwall of **NNE-dipping** San Miguelito fault could explain position of Obispo Fm.

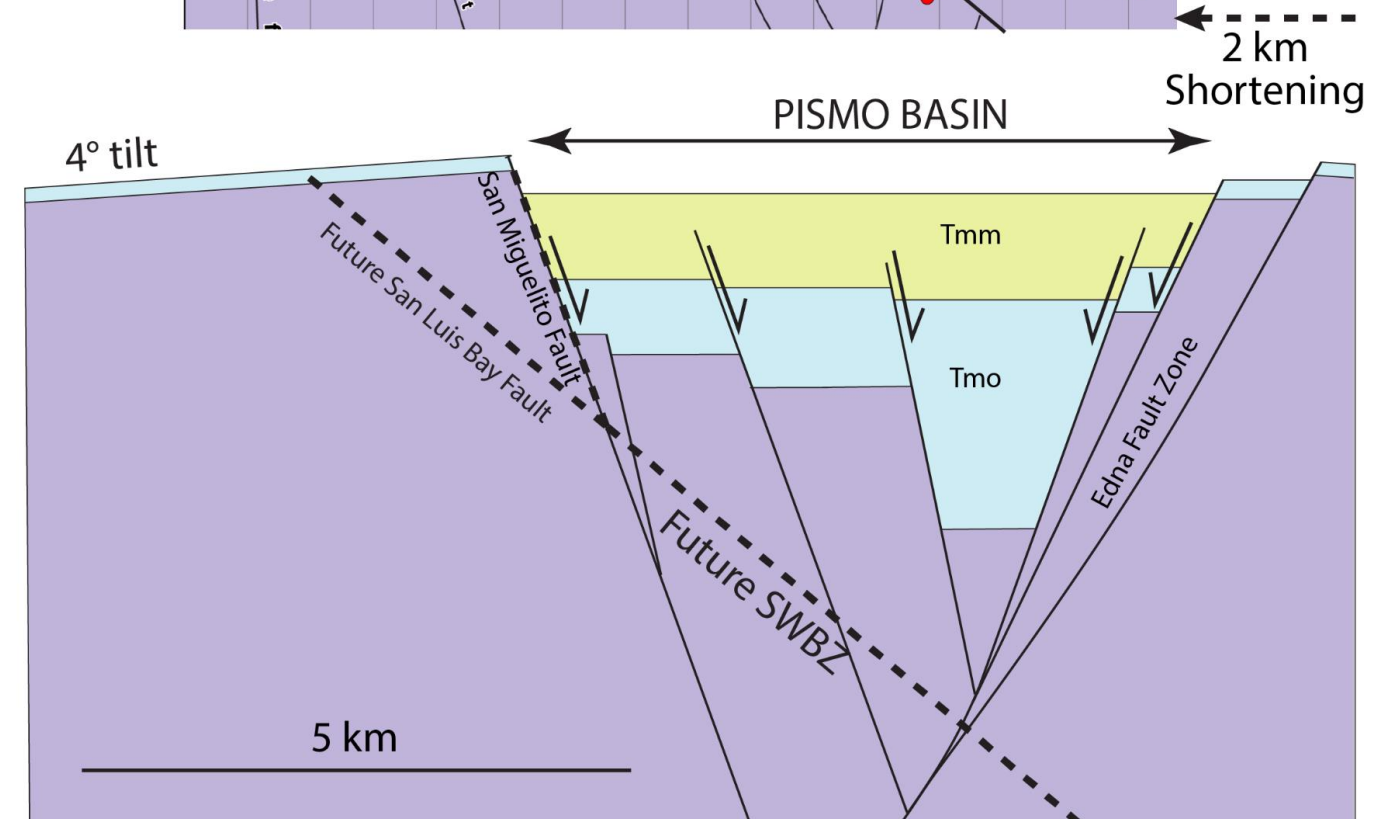
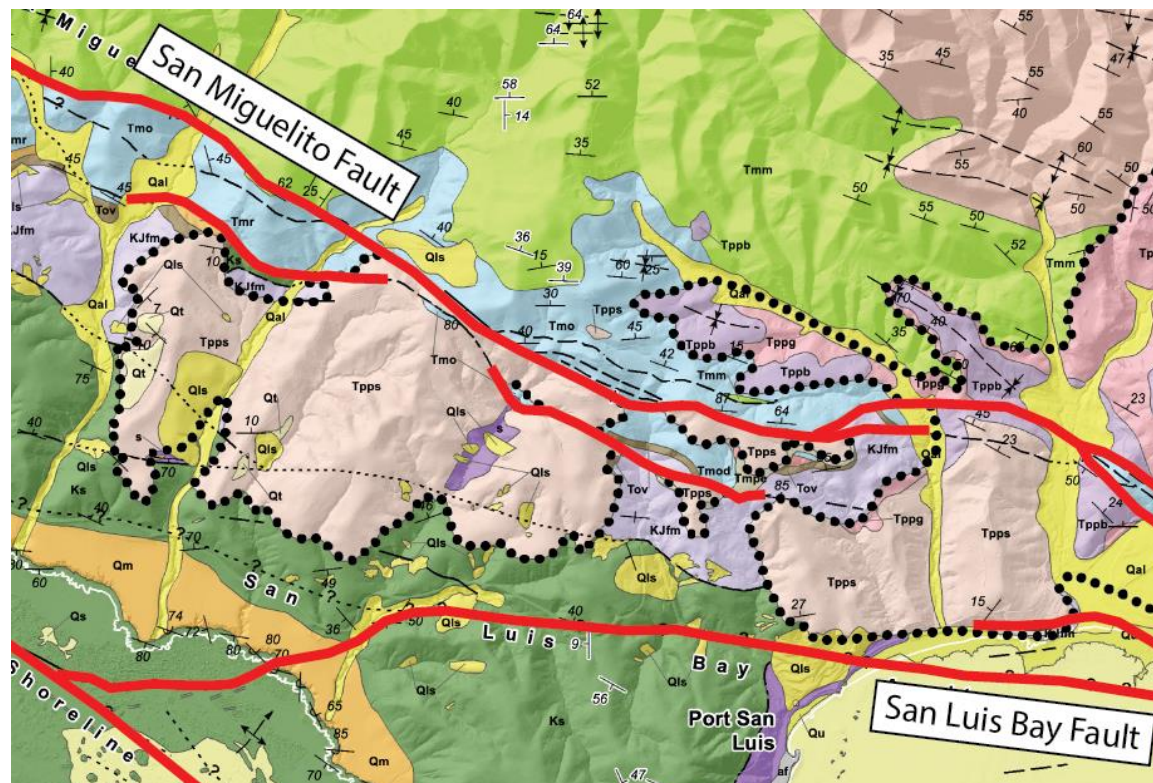
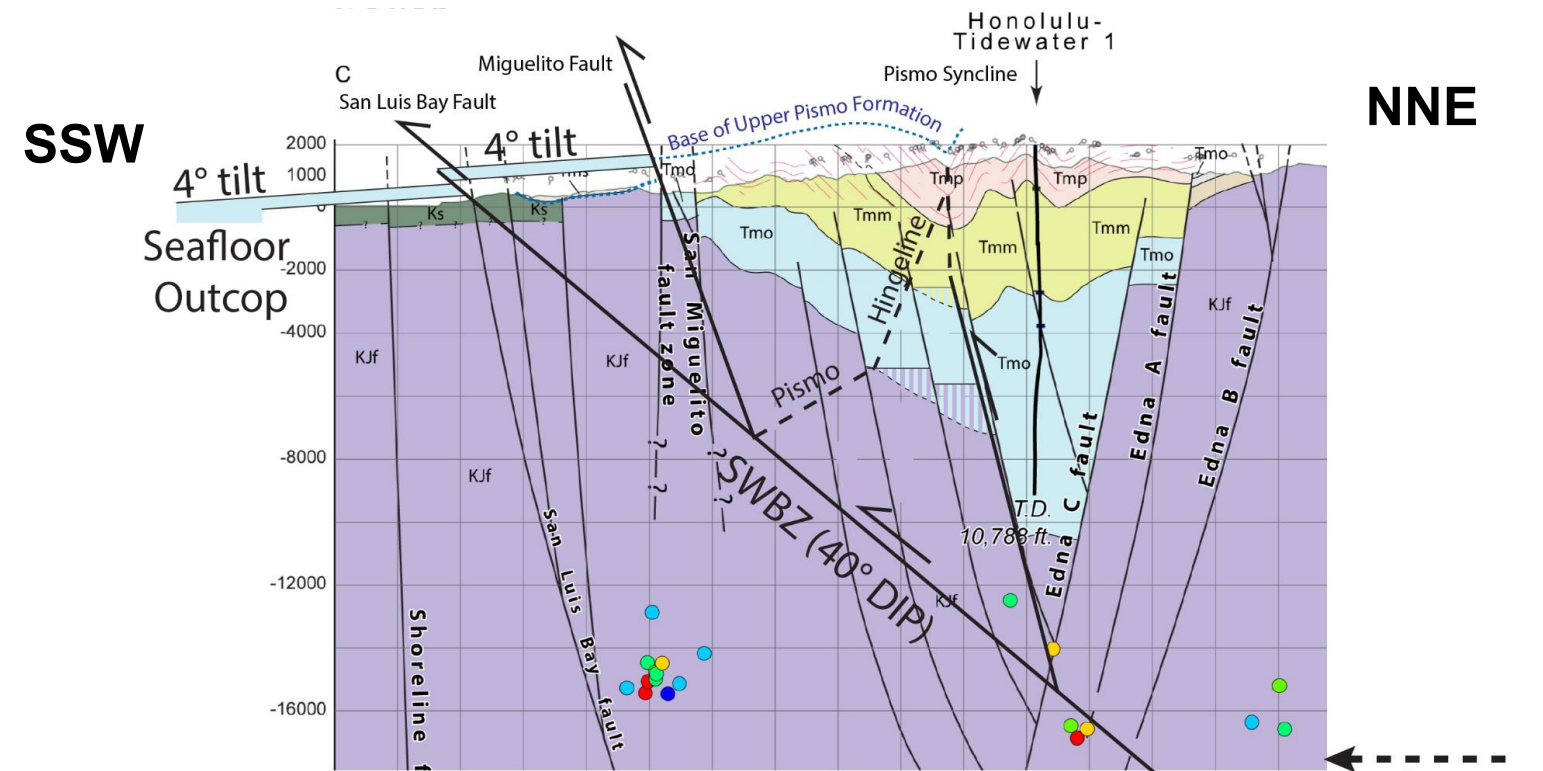


Fault System Analysis

- SRT assertion: “We find that the 1.8 ± 0.2 km length of the south limb of the Pismo Syncline provides a robust measure of slip within a kinematically constrained fault model.”
- Bird objection: “During Miocene normal faulting, the N-side outcrop of Tmo would have been displaced down relative to the S-side outcrop. This means that the net throw during Pliocene-Quaternary thrust faulting would be larger than I assumed, and the thrust slip-rate also greater, with no upper limit.”

Fault System Analysis

- Reverse slip on the San Miguelito fault **is less** than the prior normal slip [<2.5 km].
- Additional slip on the San Luis Bay fault **is limited** by preservation of Pismo formation in its hangingwall.



Fault System Analysis

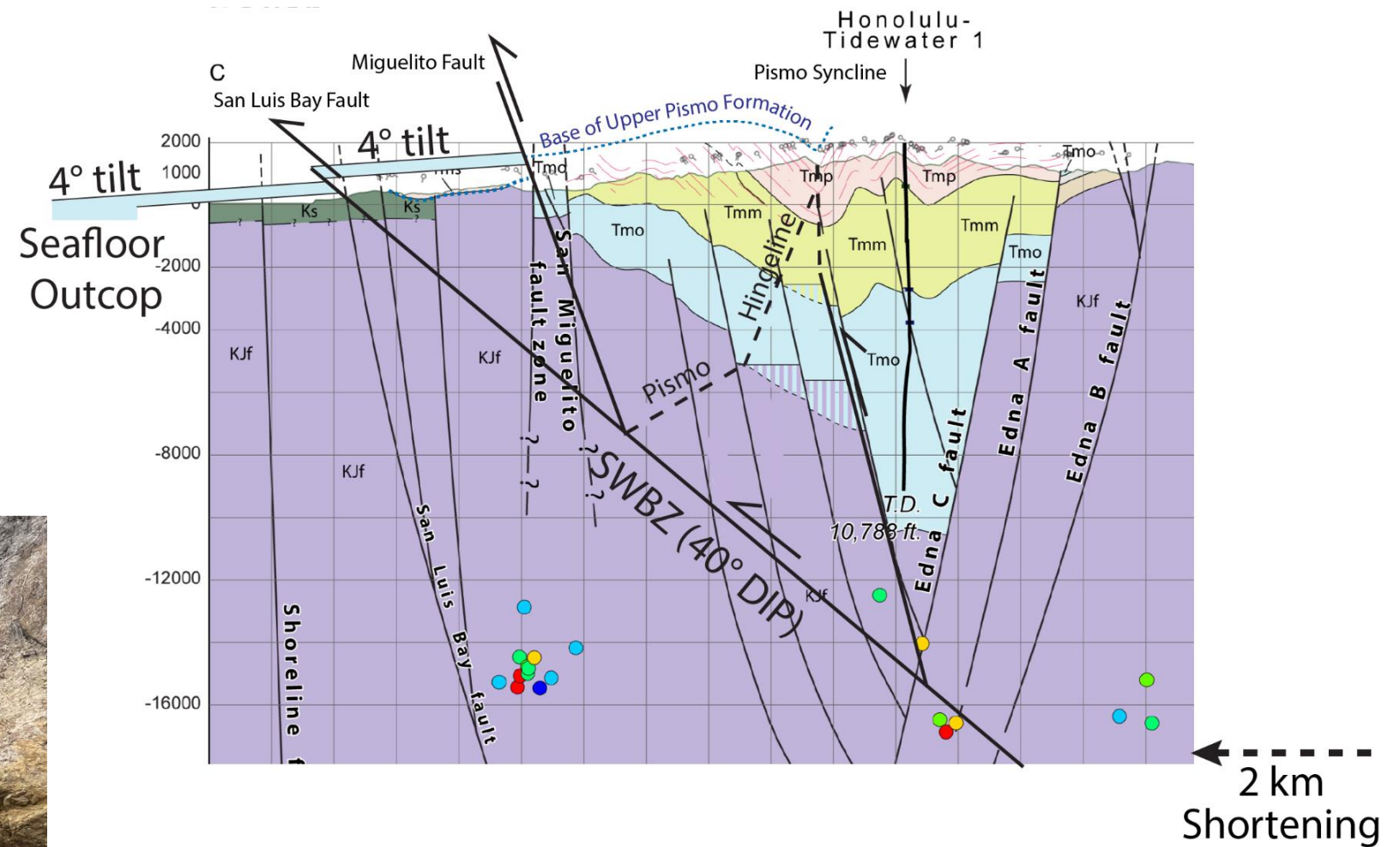
- SRT assertion: “Both the dip of the south limb of the Pismo Syncline and the field observations of fault dips within the SWBZ support a moderately dipping ($\sim 40^\circ$) thrust faulting solution.”
- Bird objection: “Outcrop dips range from $25^\circ \sim 56^\circ$, showing that most of them cannot be reliable indicators of overall fault dip at depth.”
- Bird objection: “Scarps of thrust faults with gentle dips (*i.e.*, 25°) are preferentially modified by collapse of the unsupported hanging-wall, leaving rough scarps composed of rubble rather than a clean outcrop. “

Fault System Analysis

- Both the dip of the south limb of the Pismo Syncline **and** the field observations of fault dips within the SWBZ support a moderately dipping ($\sim 40^\circ$) thrust.



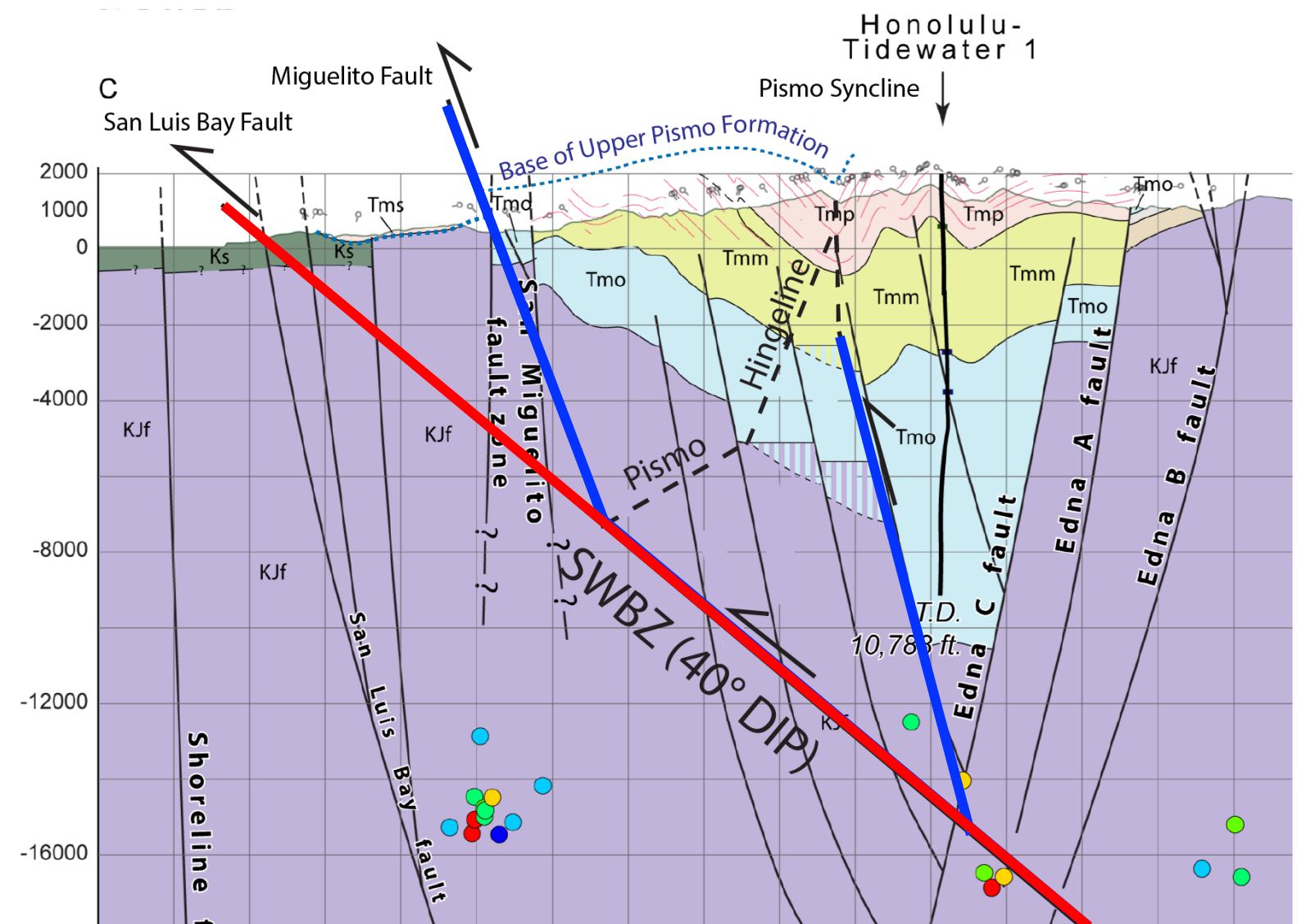
Avila Beach: $38 \pm 5^\circ$



- The fault dips we report from the SWBZ are measured from intact outcrop exposures, not collapsed scarp material. None of the measured dips from the SWBZ is less than 25° .

Fault System Analysis

- Bird objection: [The SRT] model... directly contradicts PG&E's assumption that the Pismo syncline has stopped forming, and that the crust between the SWBZ and the Los Osos thrust fault trace is now behaving as a rigid block
- The SRT cross-section is a **two-stage model** that explains folding *and* marine-terrace uplift:
 - **Stage 1**: Folding of the Pismo Syncline by reactivation of normal faults above SWBZ
 - **Stage 2**: Block-like uplift above SWBZ / San Luis Bay fault.



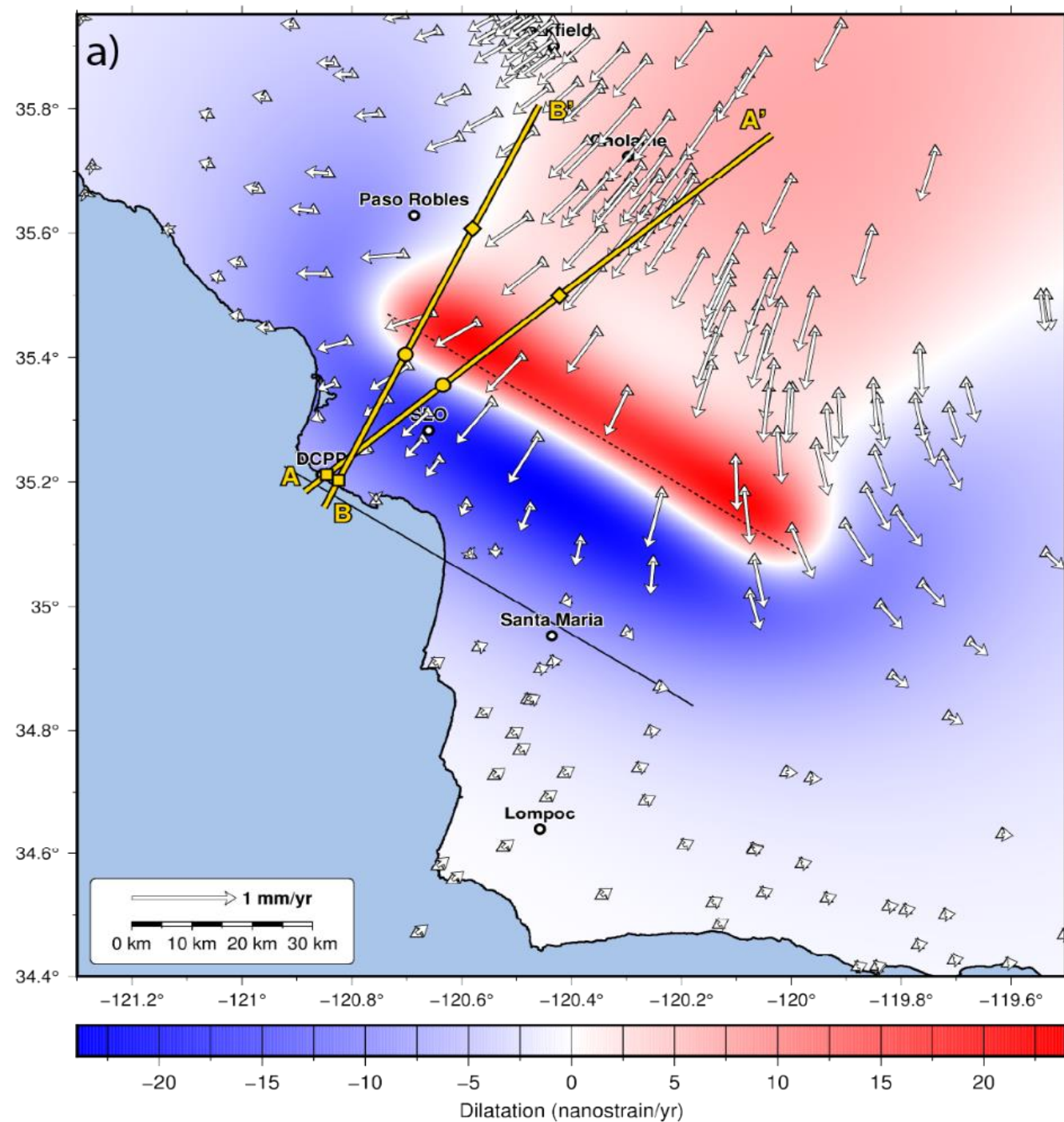
Geodetic Analysis

Scott Marshall

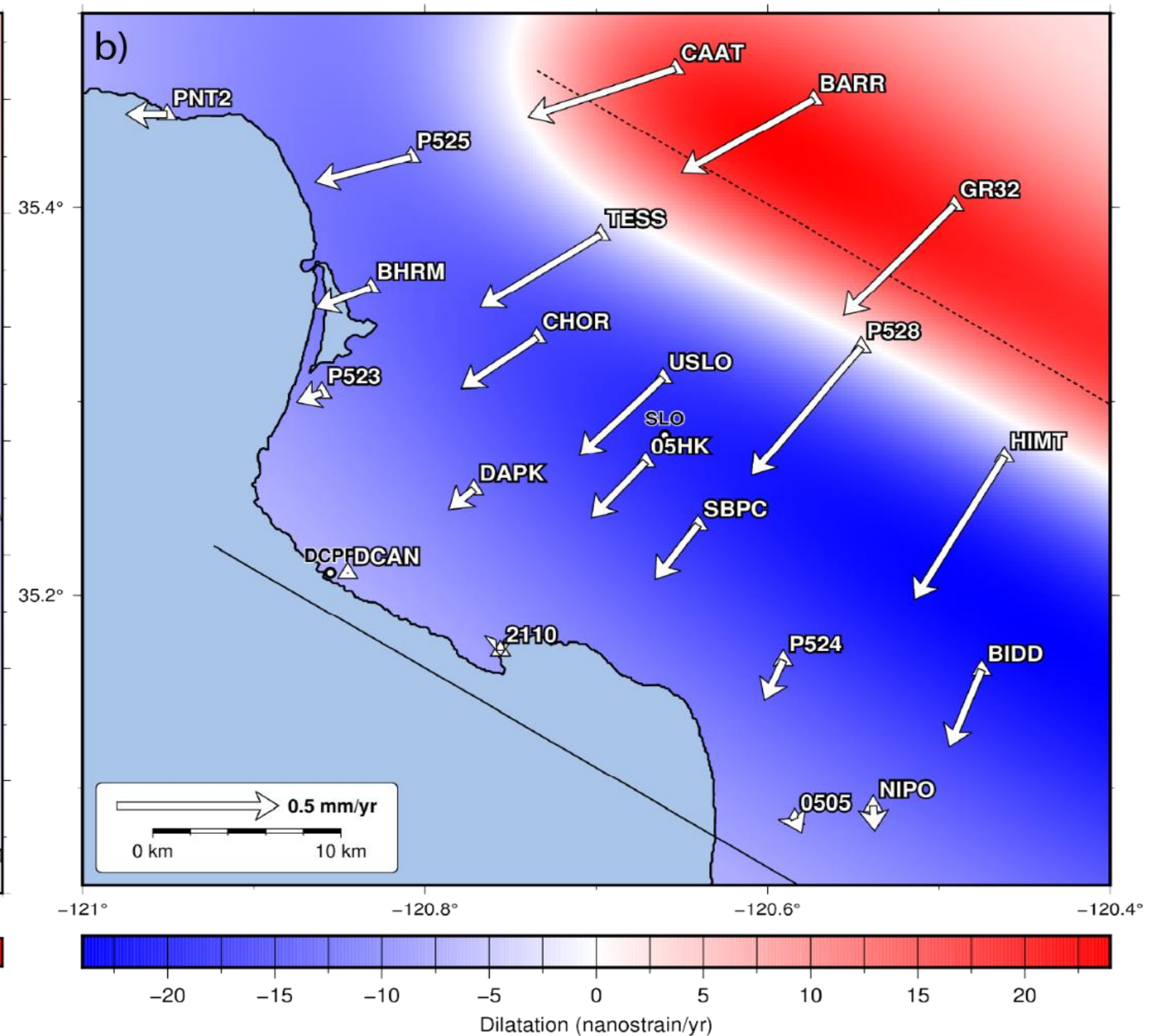
Geodetic Analysis

- Bird objection: “I used the Zeng [2022] dataset with no modifications...And I used the option, in that program, to change the velocity reference frame by adding a simple Eulerian rotation-rate to the entire dataset;”
- SRT: Removing rotation has undesirable consequences related to the San Andreas fault slip rate (as discussed in the SRT Report); however, we agree that the reference frame issues/differences are not important for our purposes.
- Bird assertion: “Relative interseismic velocities among the 4 stations bracketing the Irish Hills indicate a shortening rate of about 1.8 mm/a in the NNE-SSW direction.”
- SRT: The high scatter and low coherence among the two-station relative velocities in the vicinity of the Irish Hills indicate that measurement errors and/or non-tectonic motions dominate the observed velocities.

Geodetic Analysis

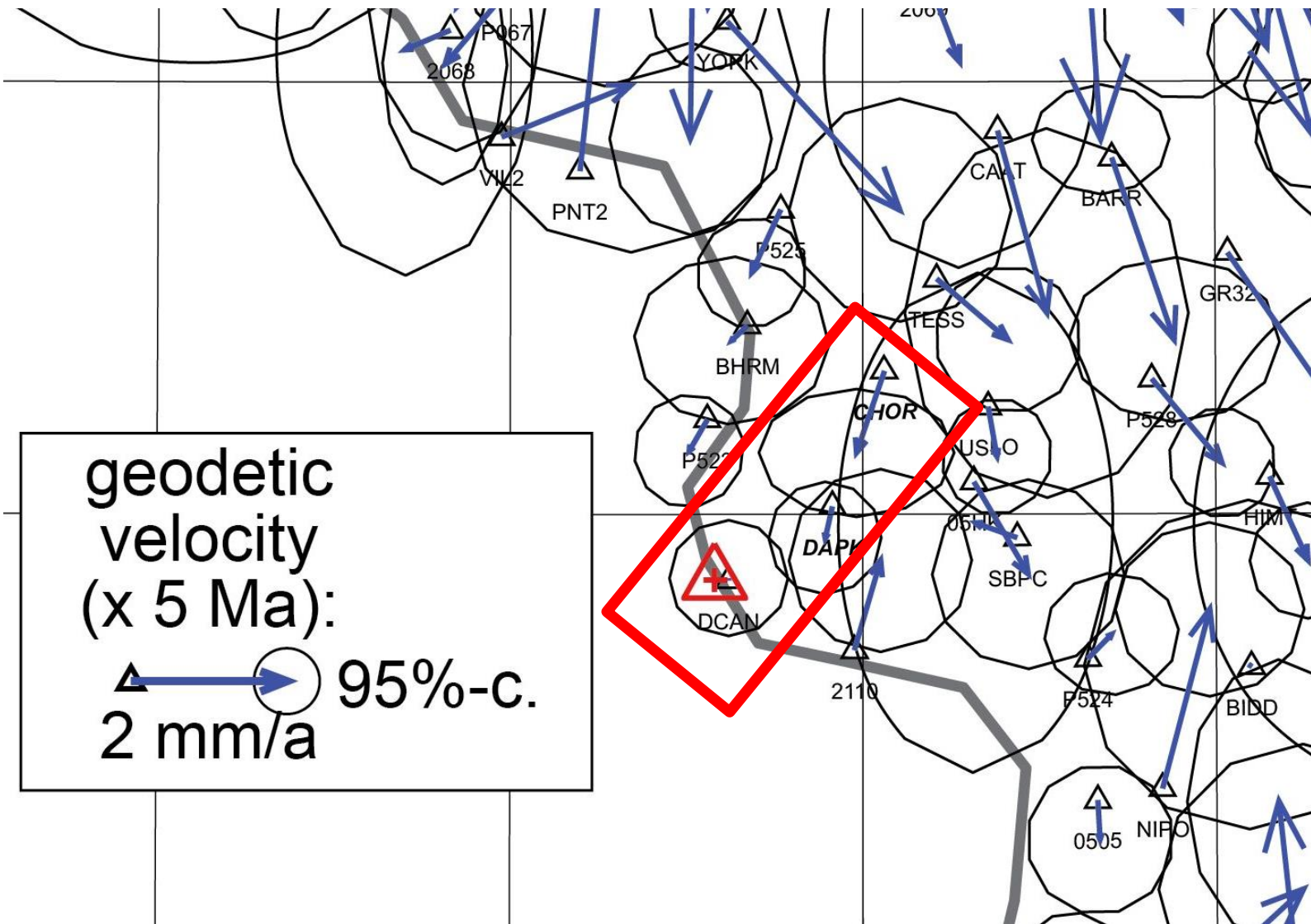


Model-predicted strain rates (colors) and velocities for a 25° dipping Bird-type thrust fault (shallow 25° dip, fast 2.5 mm/yr slip rate, 15 km locking depth).

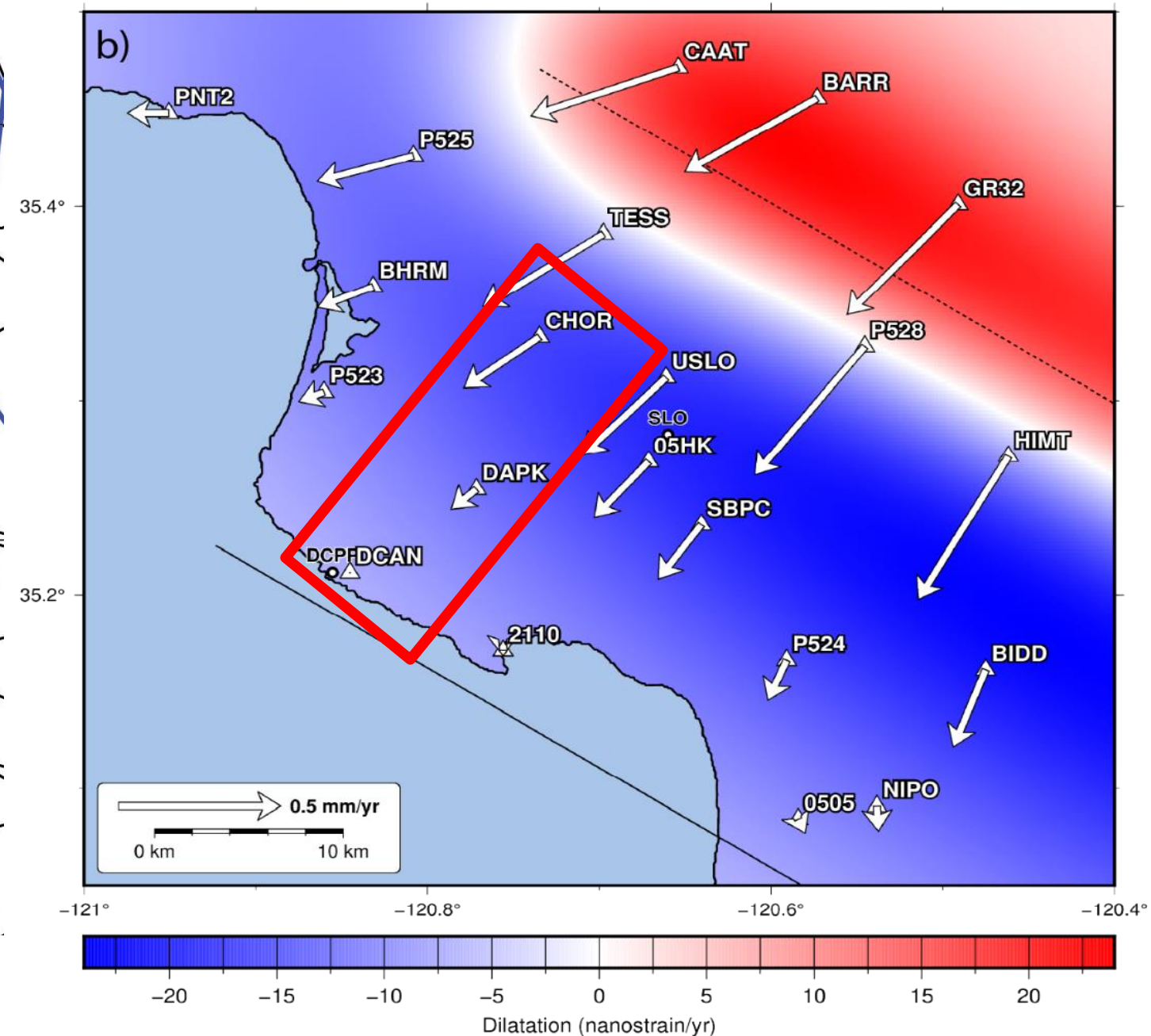


Same, but zoomed in to the Irish Hills and DCPD region.

Geodetic Analysis

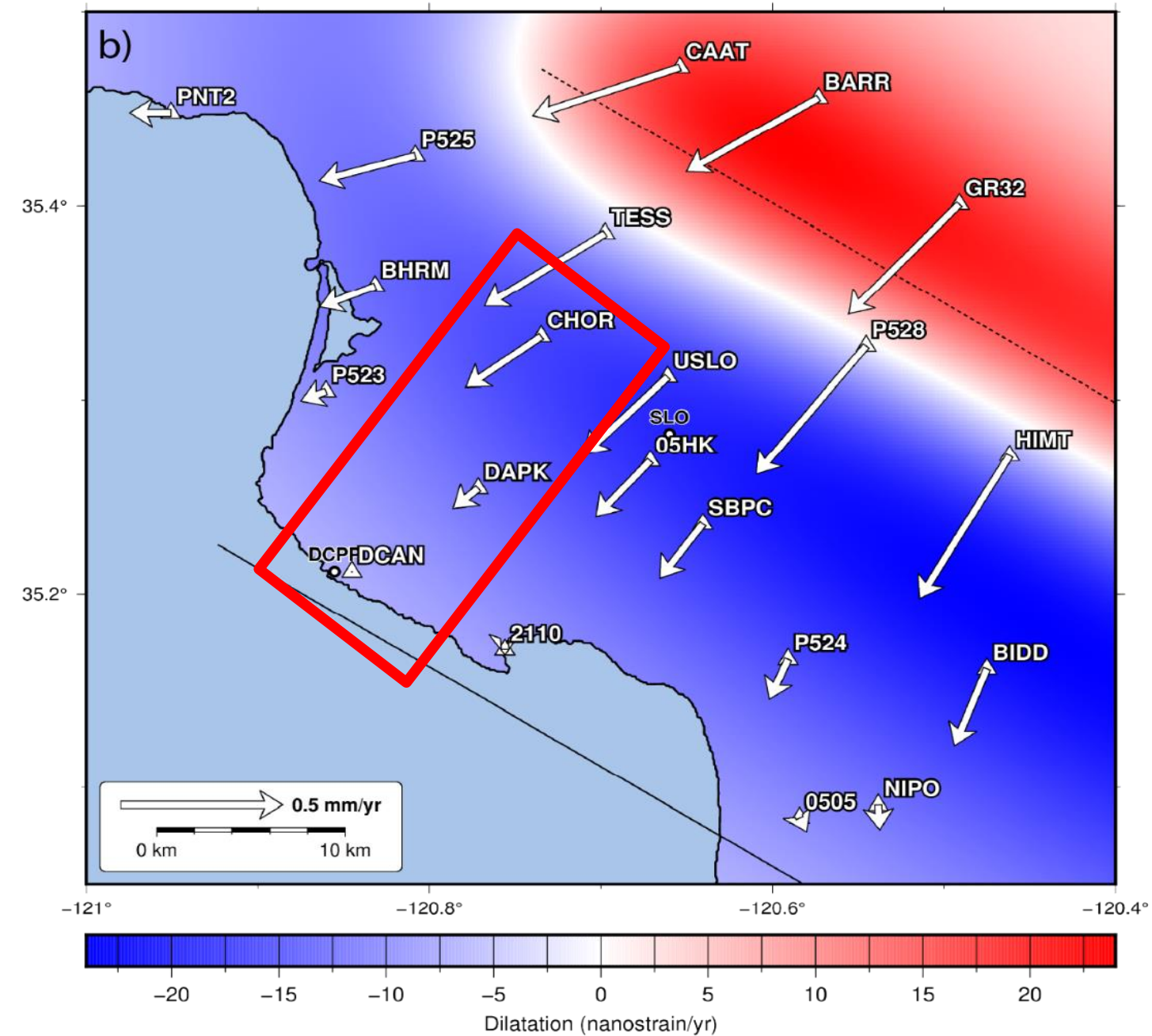
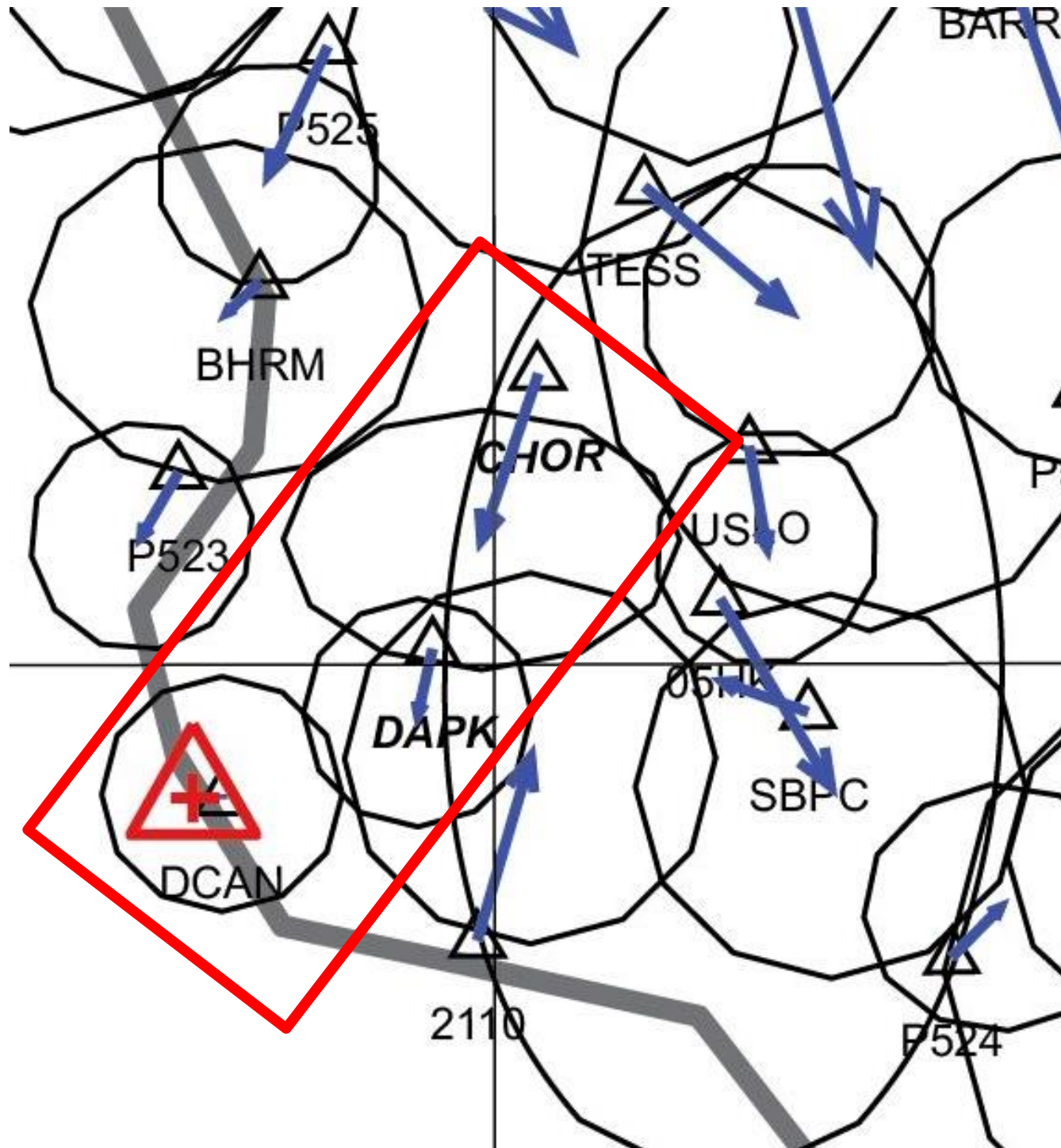


Bird's Figure 1: "Detail from a map of interseismic GPS velocities from the dataset of Zeng [2012]...Note horizontal shortening, especially between DCAN-CHOR and between 2110-CHOR."



SRT: Model-predicted strain rates (colors) and velocities (arrows) for a Bird-type thrust fault (shallow 25° dip, fast 2.5 mm/yr slip rate, 15 km locking depth)

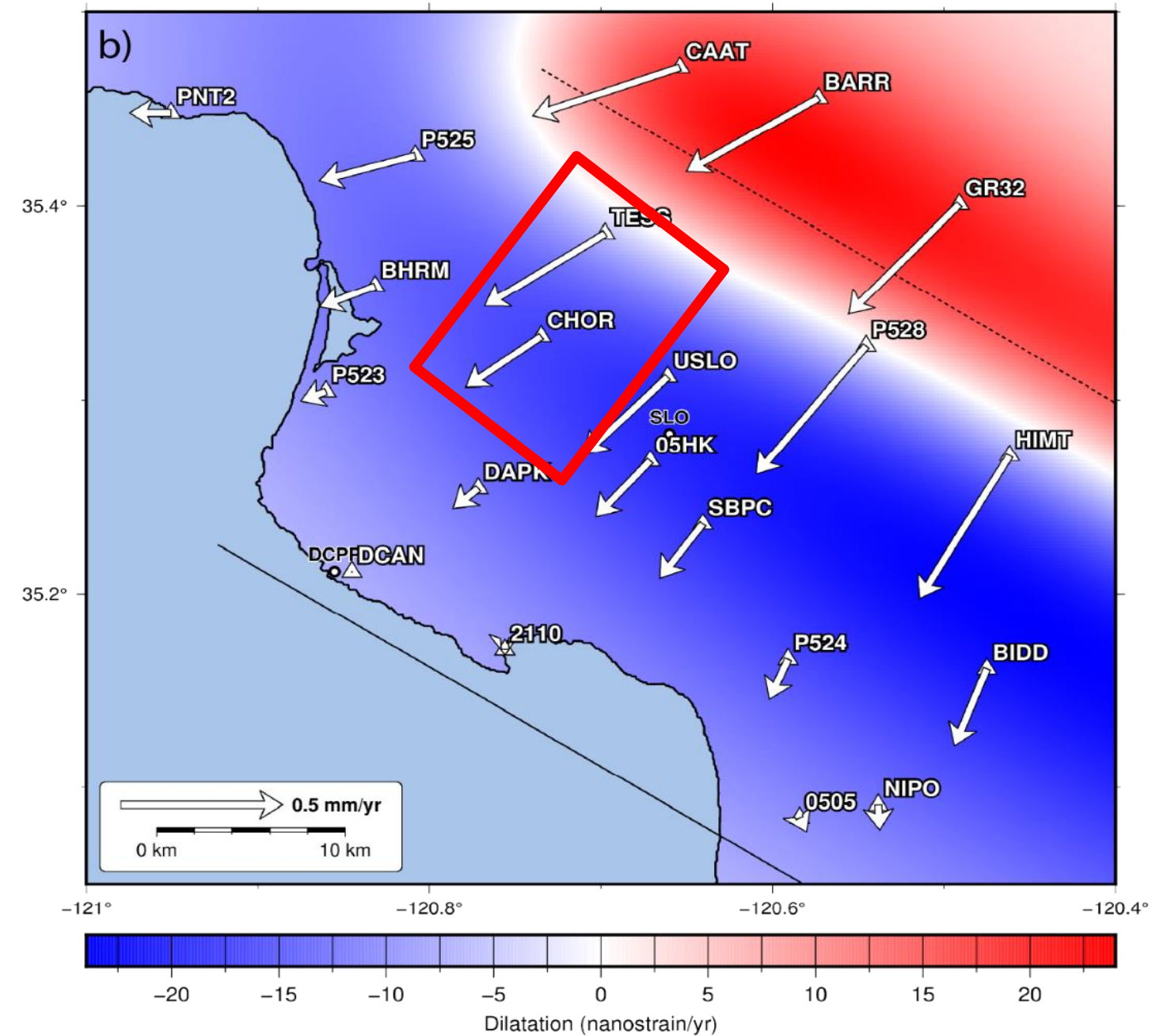
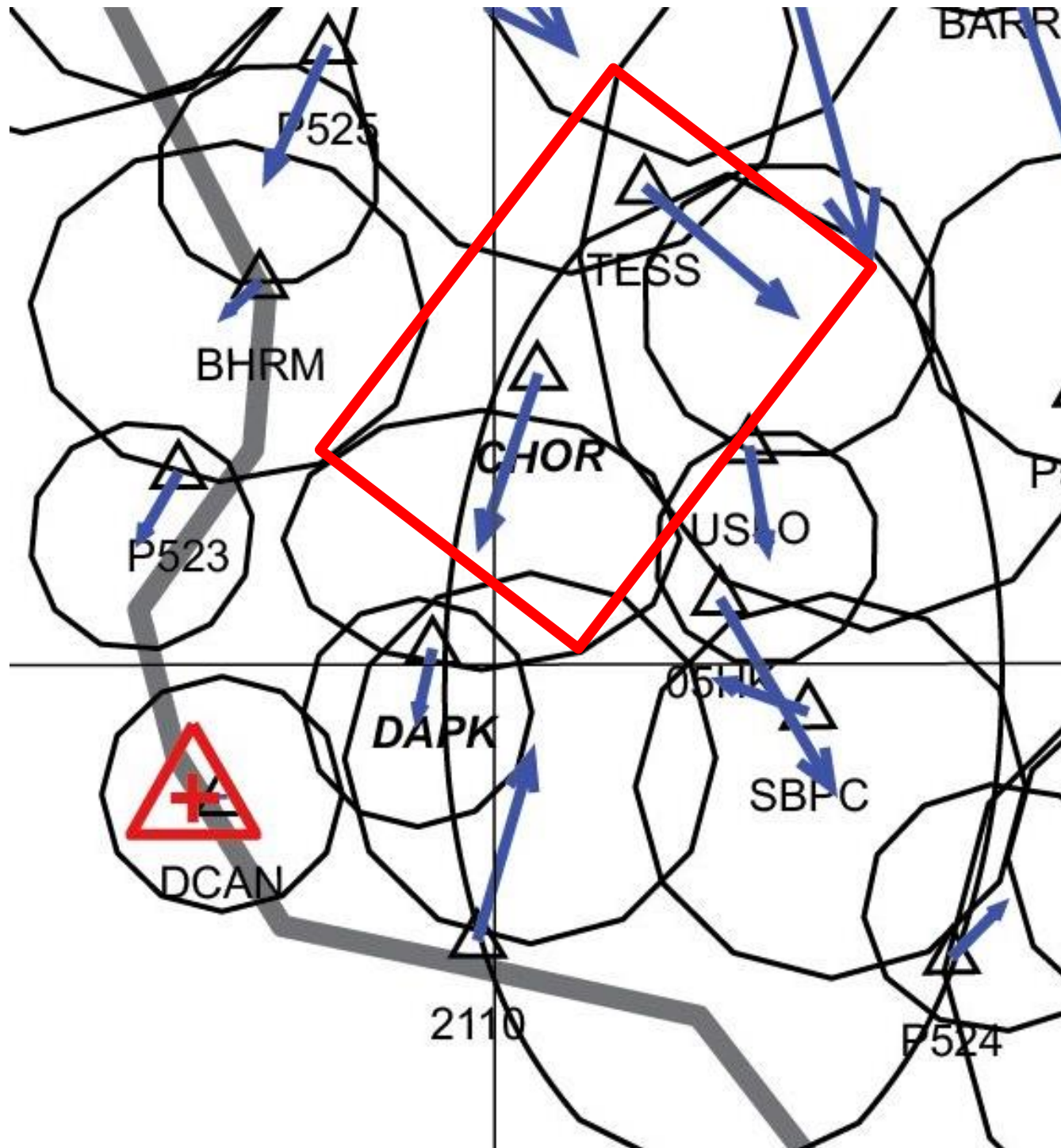
Geodetic Analysis



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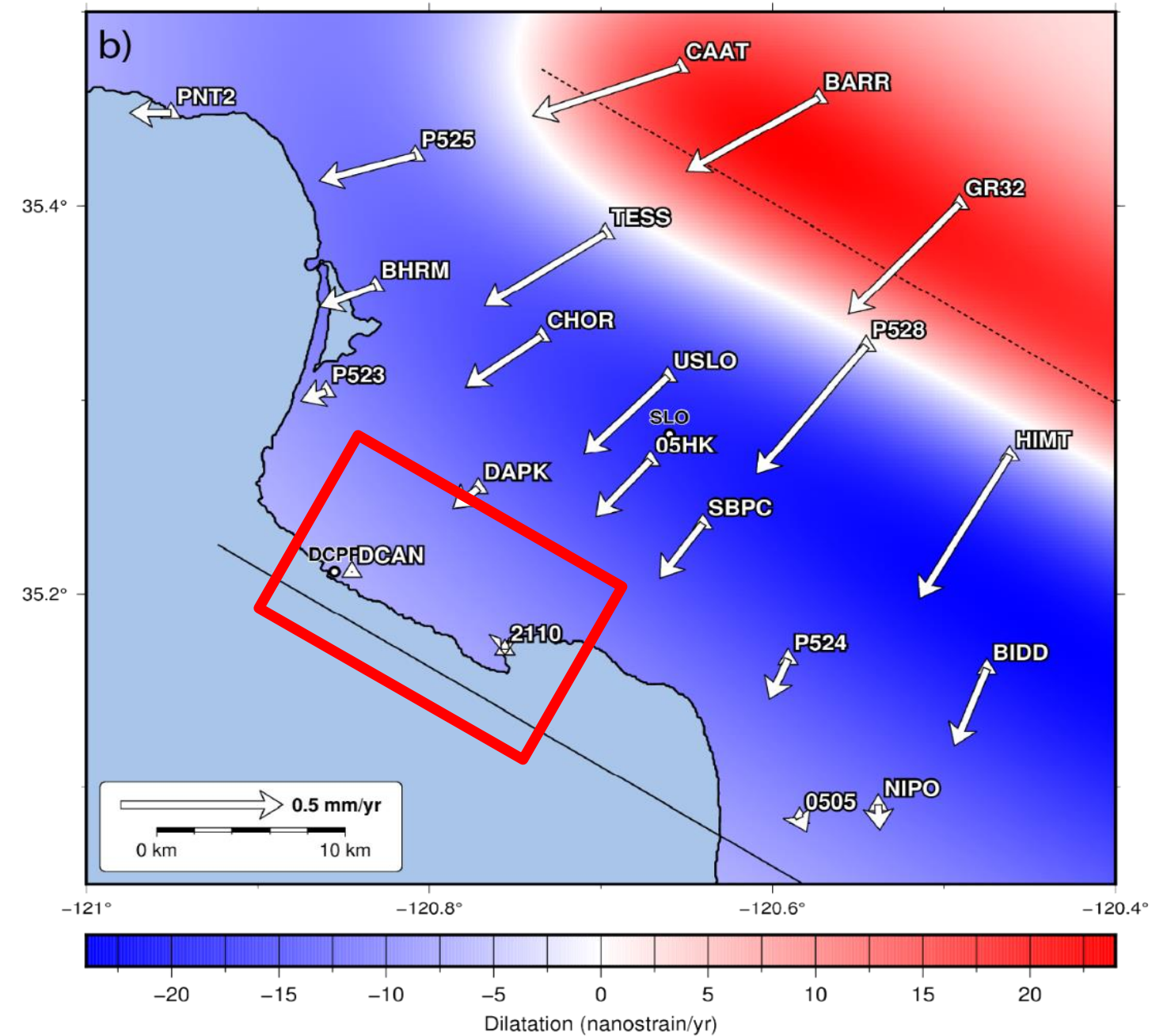
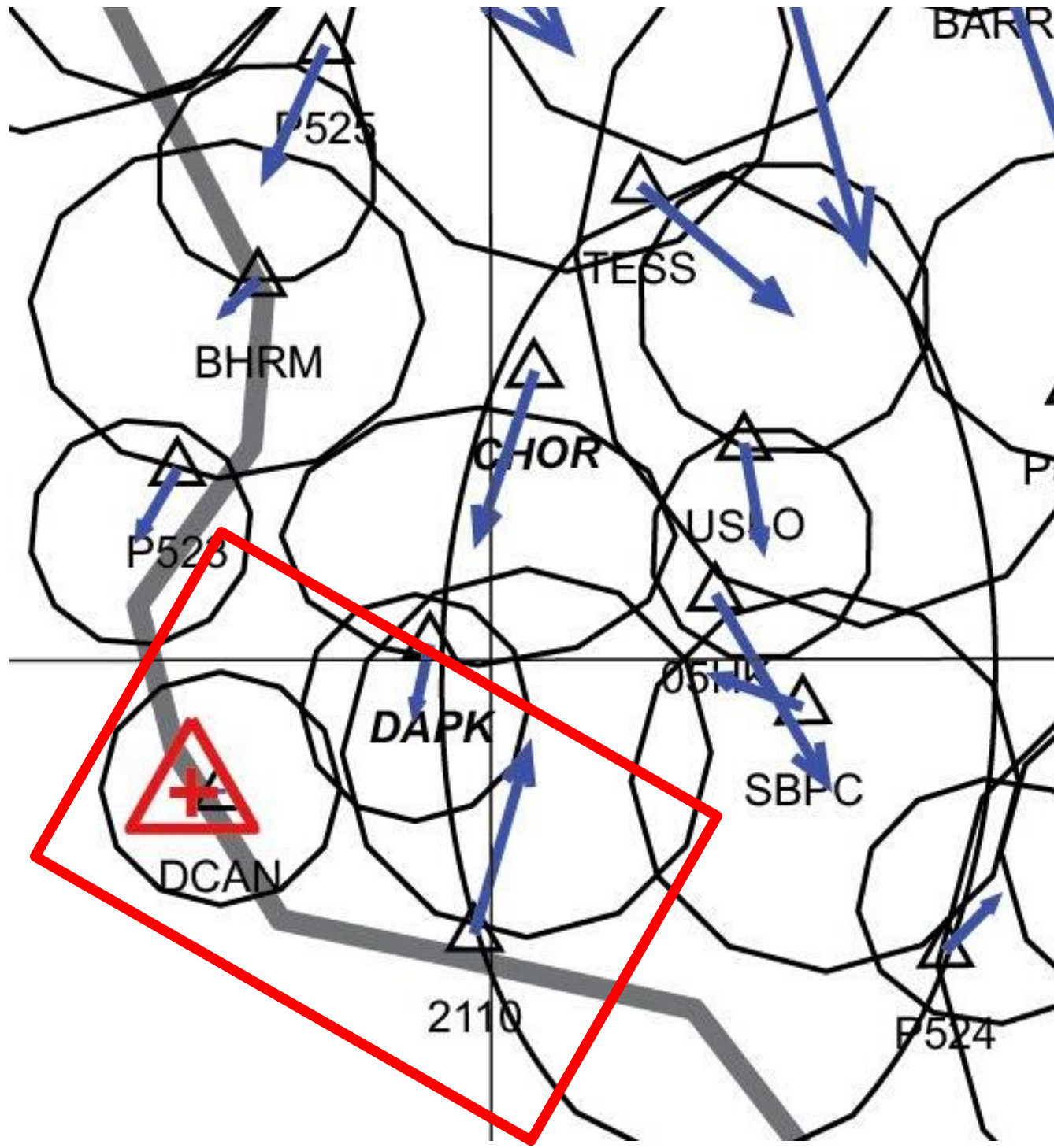
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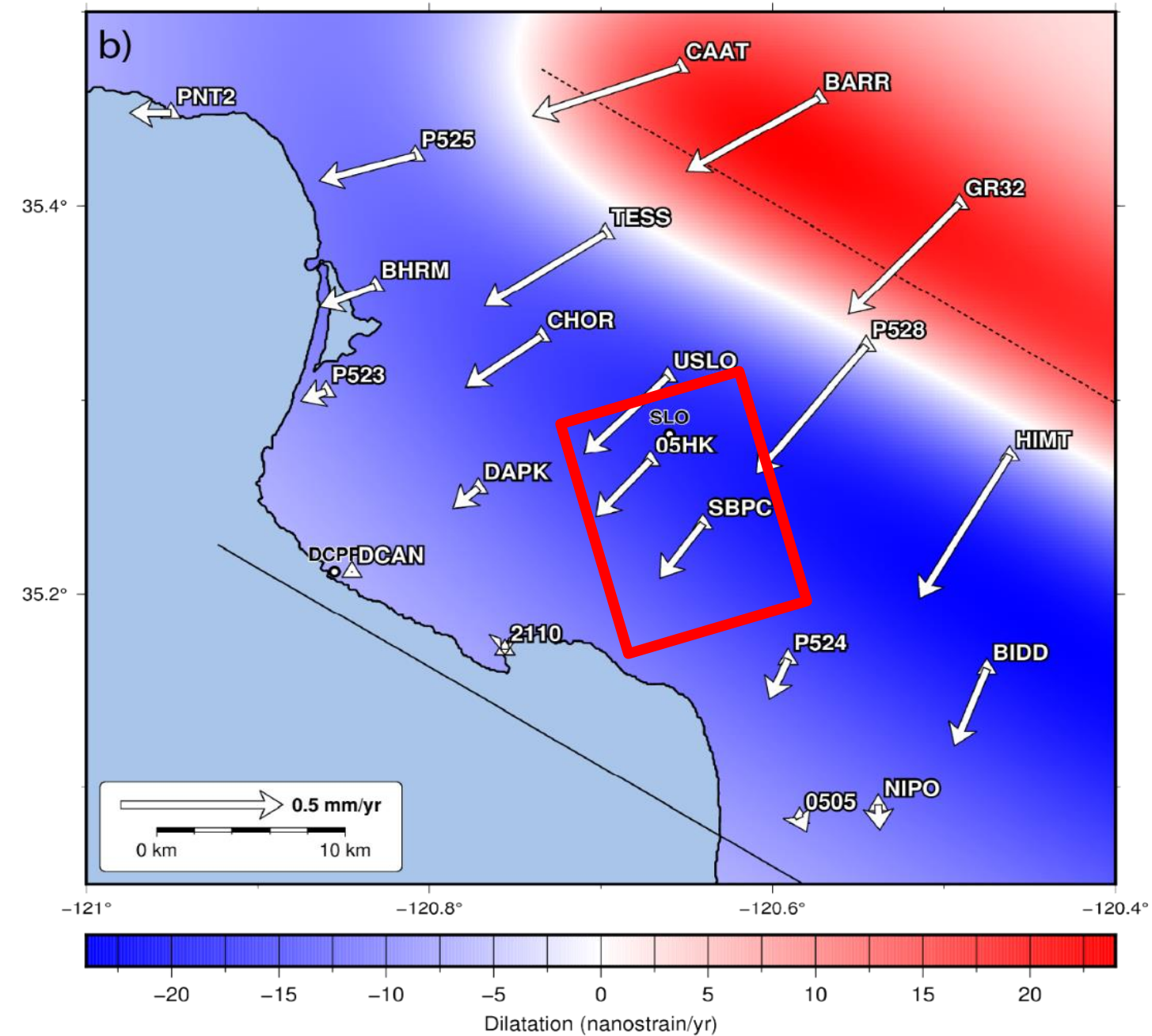
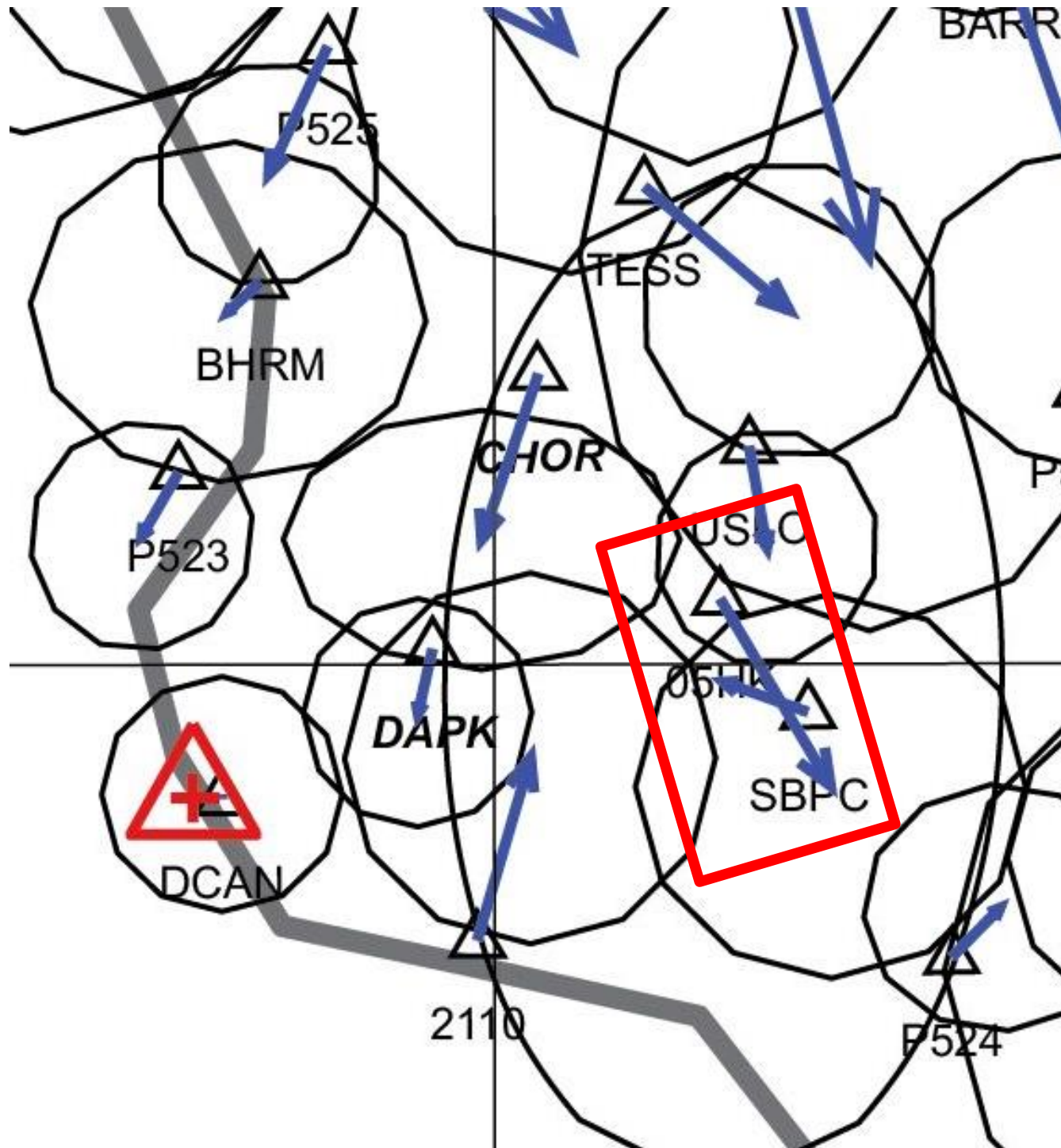
Geodetic Analysis



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Geodetic Analysis

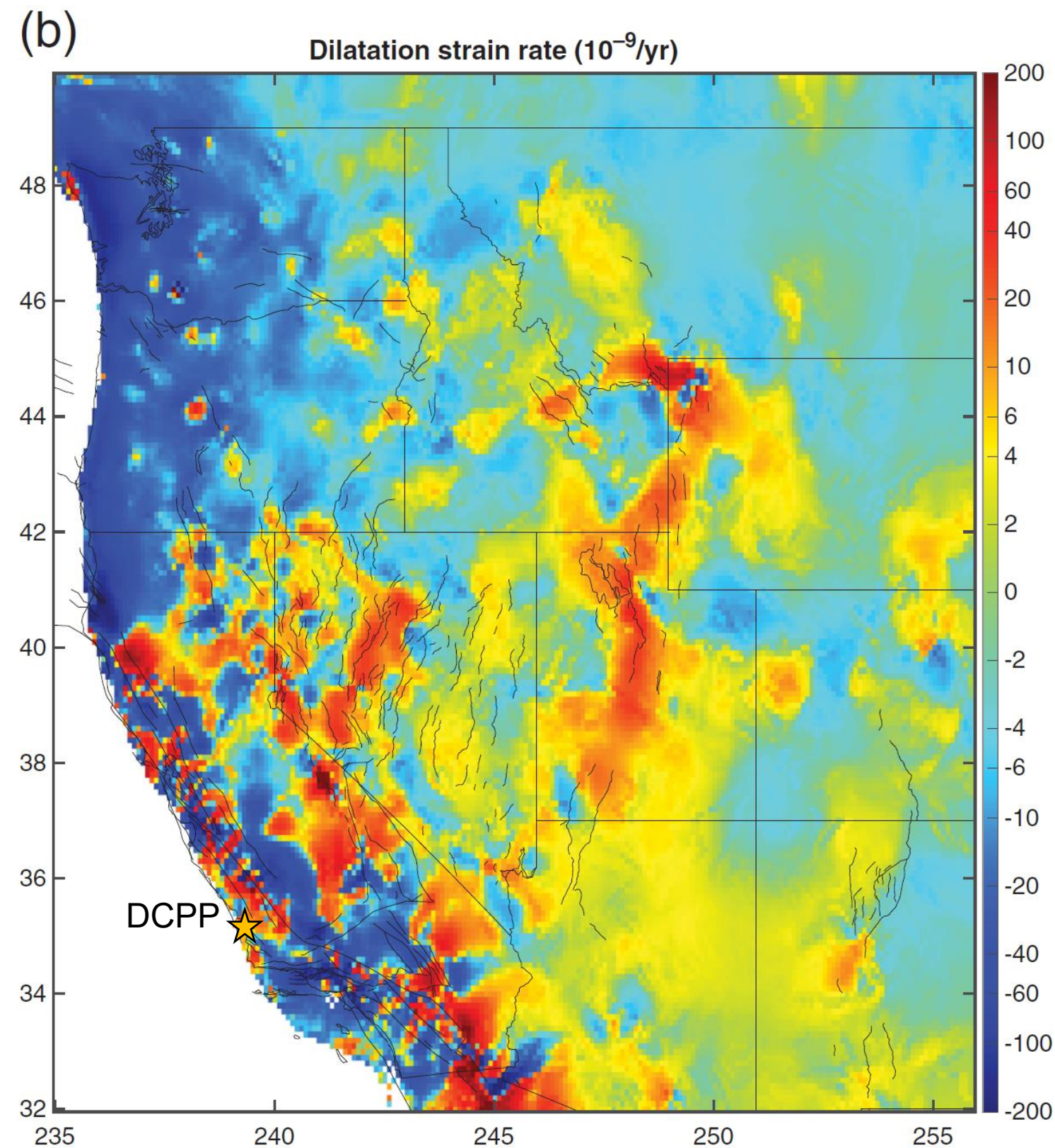


SRT: Model-predicted strain rates (colors) and velocities (arrows) for a Bird-type thrust fault (shallow 25° dip, fast 2.5 mm/yr slip rate, 15 km locking depth)

Bird's Figure 1: "Detail from a map of interseismic GPS velocities from the dataset of Zeng [2012]..."

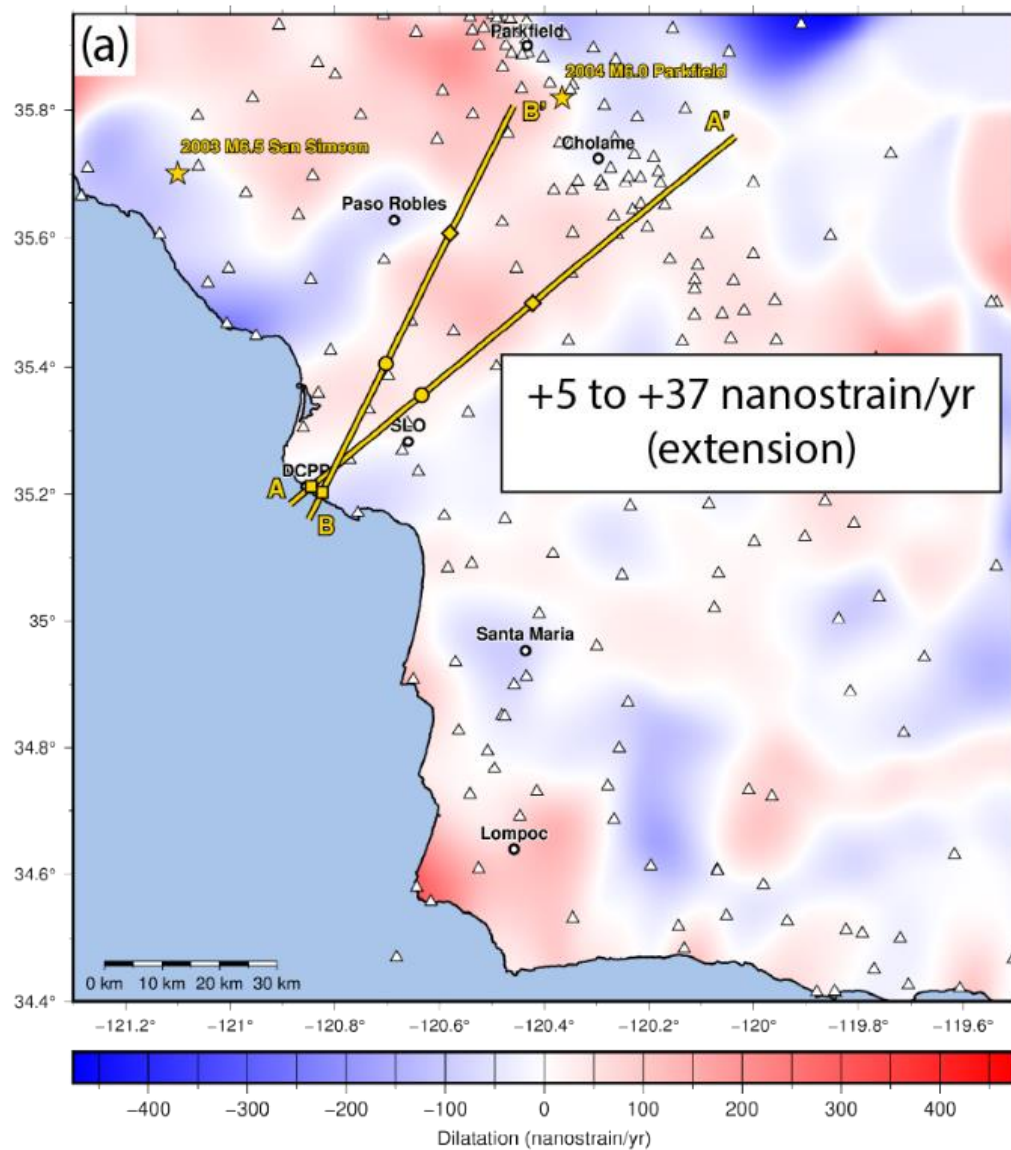
Geodetic Analysis

- SRT: “The high scatter and low coherence among the two-station relative velocities in the vicinity of the Irish Hills indicate that measurement errors and/or non-tectonic motions dominate the observed velocities.”
- SRT: The data should be analyzed in profiles (see SRT report) and interpolated and smoothed for strain rate mapping before interpretation.

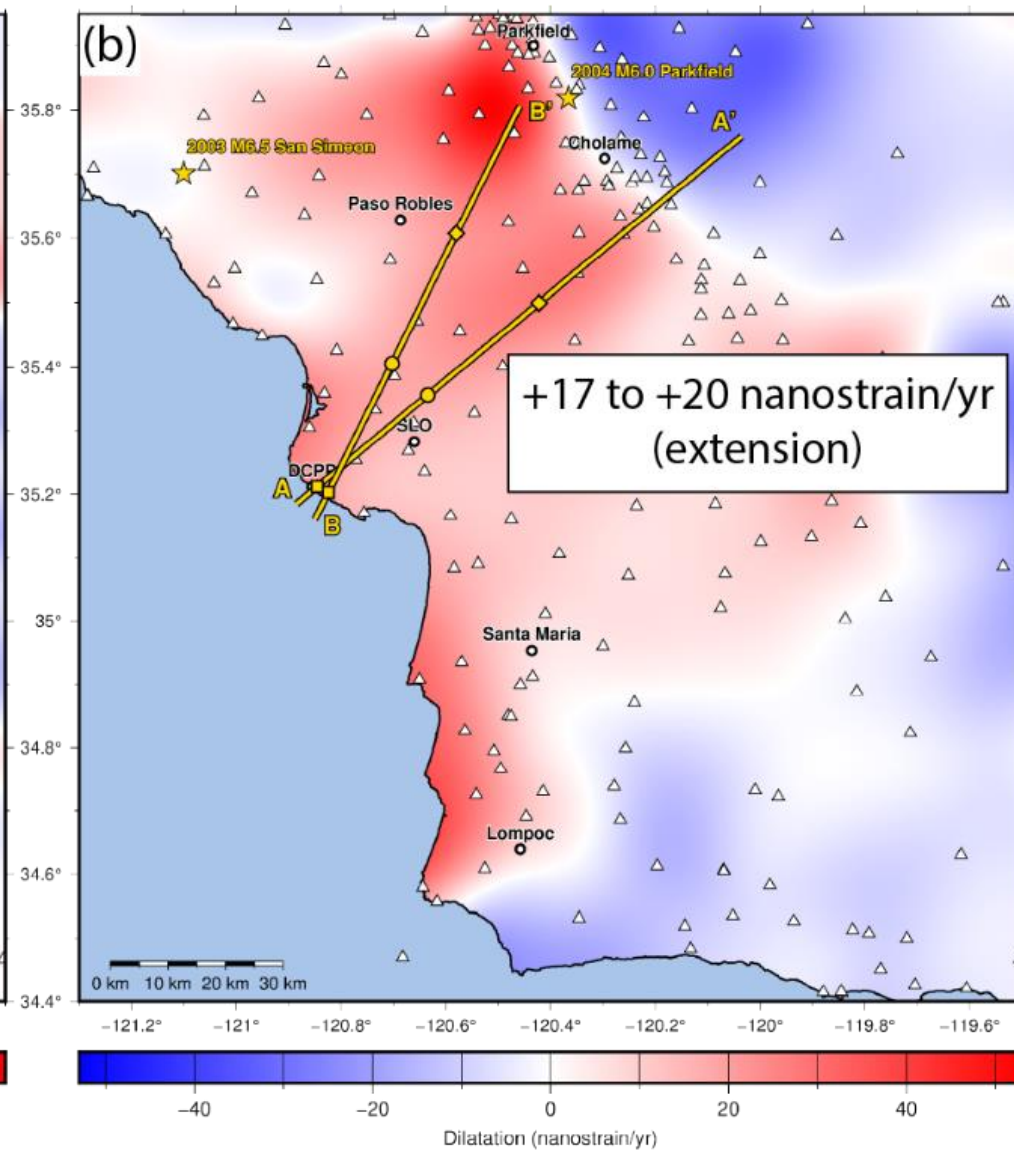


Zeng (2020) figure 9b: Dilatational strain rate map inverted using a similar method (Shen et al. 2015) to the SRT

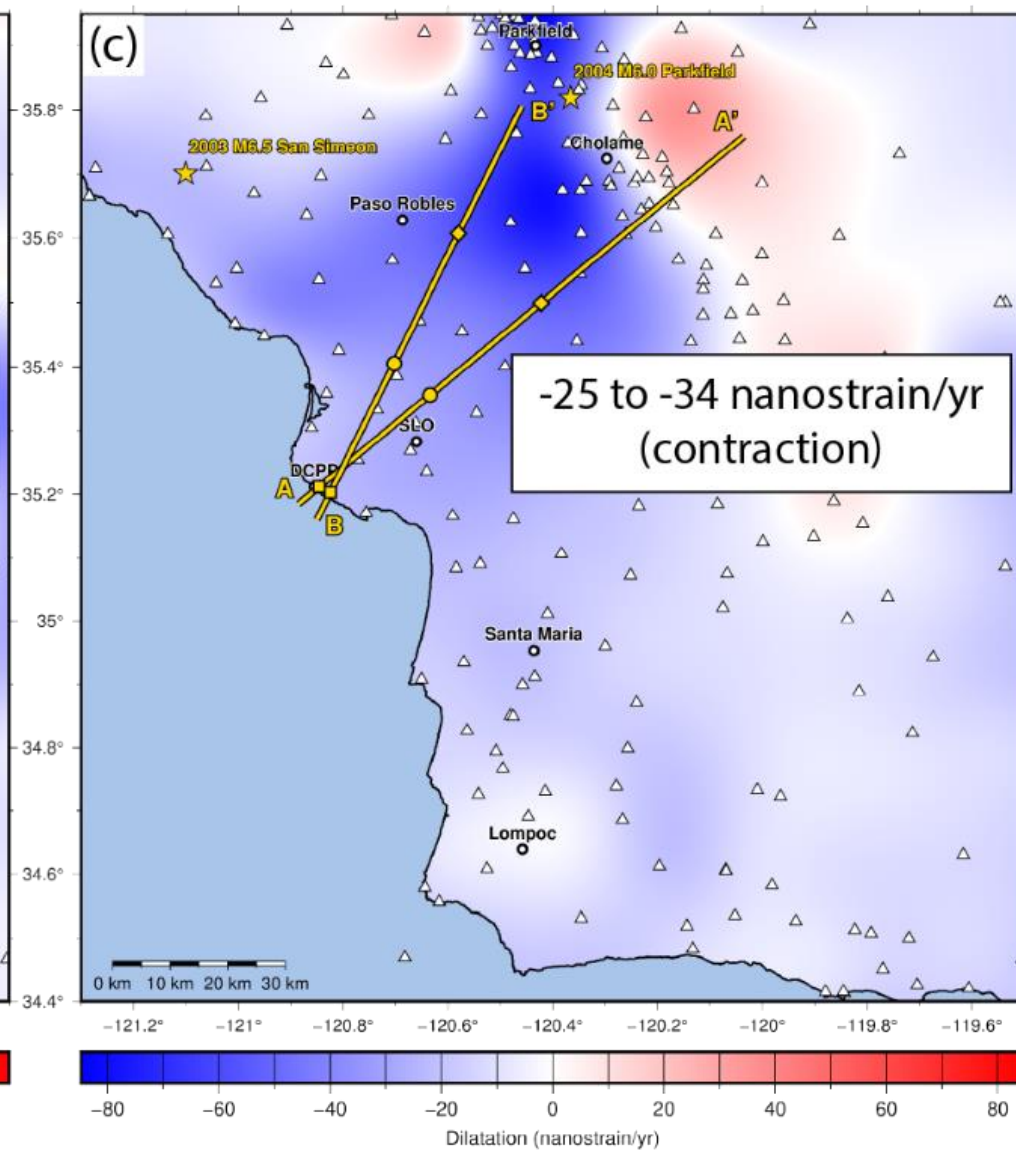
Geodetic Analysis



Raw inversion of uncorrected Zeng (2020) GPS velocities. Note the low spatial coherence.



Interpolated inversion of uncorrected Zeng (2020) GPS velocities using gpsgridded (Sandwell & Wessel, 2015). Note extension throughout the Irish Hills.



Interpolated inversion of corrected Zeng (2020) GPS velocities using gpsgridded. Note that removing the effects of the San Andreas fault **increases** regional contraction.

Geodetic Analysis

Bird objection: “Correction(s) for effects of distant faults. The SRT is quite right that this correction is appropriate, in principle. However, I will argue that the SRT did not perform this step correctly, and improperly reduced the magnitude of the shortening-rate signal by 50~75%.”

SRT: This correction is valid and **increased** the shortening rate across the Irish Hills.

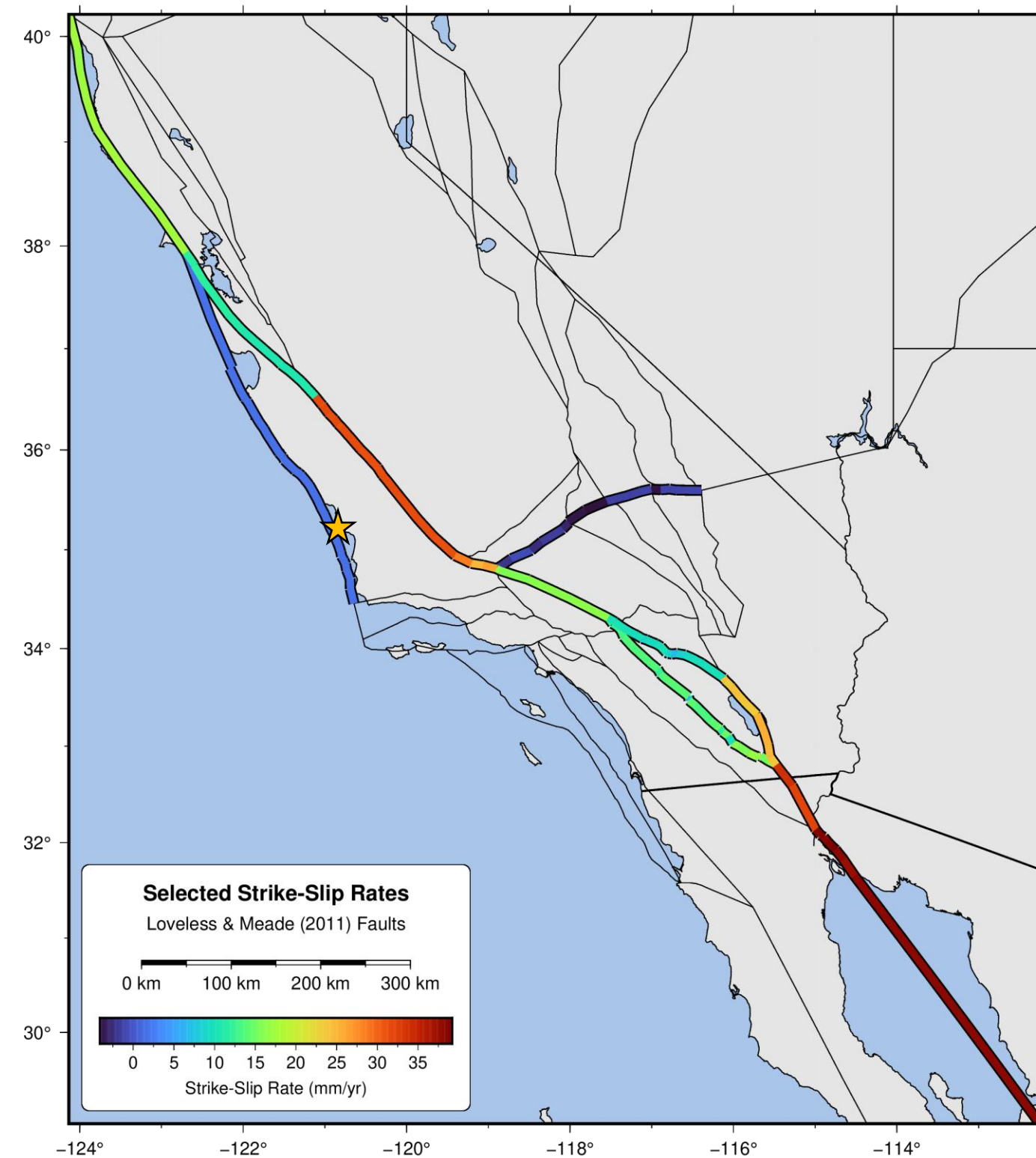
Raw inversion of uncorrected Zeng (2020) GPS velocities. Note the low spatial coherence.

Interpolated inversion of uncorrected Zeng (2020) GPS velocities using gpsgridded (Sandwell & Wessel, 2015). Note extension throughout the Irish Hills

Interpolated inversion of corrected Zeng (2020) GPS velocities using gpsgridded. Note that removing the effects of the San Andreas fault **increases** regional contraction.

Geodetic Analysis

- Bird objection: The Loveless & Meade (2011) models are flawed
 - Fit to GPS data involves removing outliers
 - Missing faults; will overestimate slip rate
- SRT: These objections are irrelevant
 - We only used the fault geometry, slip rates, and locking depths from Loveless & Meade (2011).
 - We reduced the Hosgri slip rate to the SSC average of 1.7 mm/yr
 - SAF slip rates of 31-32 mm/yr are generally consistent with geology.



Fault model parameters from Loveless & Meade (2011) used to “correct” the Zeng (2020) GPS velocities (SRT report, Figure 3.9)

2024 Noto Peninsula Earthquake as Analog Event

Tom Jordan

2024 Noto Peninsula Earthquake as Analog Event

SRT finding:

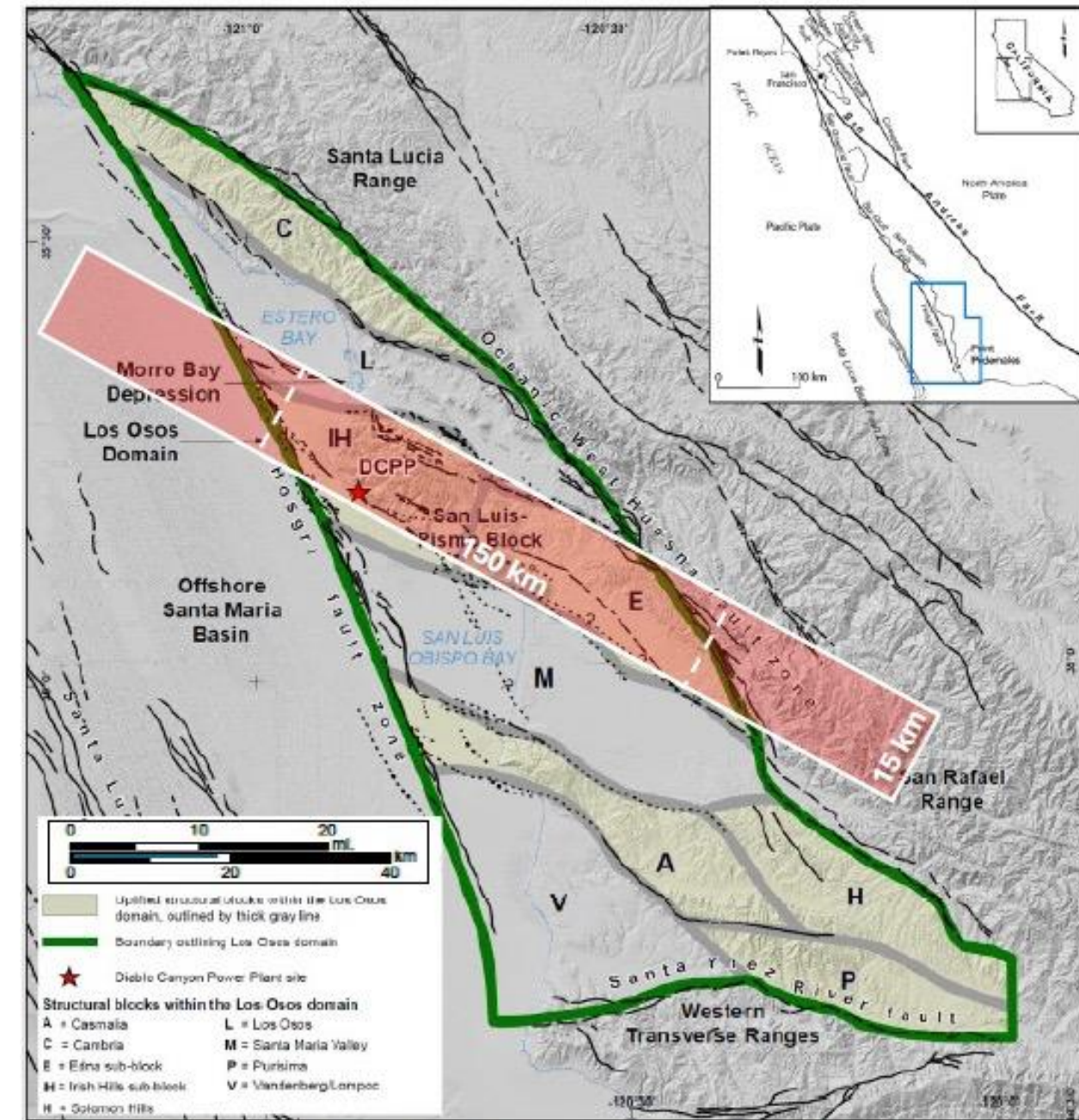
A Noto24-type earthquake is not suitable as a characteristic earthquake for thrust faulting beneath the Irish Hills owing to its

- extreme length,
- high stress drop, and
- large block tilting,

Bird response:

“The Noto earthquake ruptured bilaterally, and the part of the earthquake responsible for PGA observations on the Noto Peninsula was the southwestern part.

Therefore, a ‘reduced Noto earthquake’ with shorter rupture, less moment, and lower magnitude could be modeled.”



2024 Noto Peninsula Earthquake as Analog Event

Bird proposal:

Employ “a supplemental (or completely new) Seismic Probabilistic Risk Assessment for DCPD including actual 3-component digital seismograms from Noto24 (with masking to eliminate late-arriving waves from the northeastern half of the rupture) to determine the probability of seismic core damage when a similar event (with a shorter thrust trace) occurs under the Irish Hills.”

SRT comments:

- Truncating rupture dimensions and masking ground motions of Noto24 to create an analog earthquake would be seismologically unacceptable
- There is no validated methodology for assimilating event-specific waveforms into SPRA
- Observational information from historic earthquakes should be integrated in the hazard-modeling (PSHA) stage, not the risk-modeling (SPRA) stage

Outline of Presentation

- Summary of the 05/30/25 SRT report
 - Overall assessment of the Bird critique
 - Findings and recommendations regarding the PG&E SSC model
- SRT review of the 06/06/25 technical response by Dr. Bird
 - Gravimetric analysis
 - Fault system analysis
 - Geodetic analysis
 - Noto24 earthquake as analog
- **SRT comments on 06/26/25 SLOMFP letter**

SRT Comments on 06/26/25 SLOMFP Letter

Letter: PG&E's claim to have evaluated the active thrust fault beneath DCPD is seriously misleading, and Dr. Jordan's expression of confidence in PG&E's work is unfounded.

SRT comments: Members of the SRT have made no statements to the DCISC nor to the public expressing confidence or lack of confidence in the PG&E SSC model.

SRT Comments on 06/26/25 SLOMFP Letter

Letter: PG&E did include a model where the San Luis Bay thrust extends West to the Hosgri fault, with a dip toward DCPD. However, the model suffered from four significant defects:

1. PG&E kept the model fault trace as far as possible from DCPD so as to minimize the hazard. In contrast, Dr. Bird located his proposed Inferred Coastline thrust fault more realistically close to the plant.

SRT comments: PG&E trace of the San Luis Bay fault lies approximately 2 km south of the proposed trace of the Inferred Coastline thrust, but both fall within the SWBZ.

- Neither hypothesized trace has been directly observed; hence, the available evidence does not show that the latter is more realistic than the former.
- According to ground motion models, shifting the PG&E model trace by 2 km would have a negligible effect on the DCPD hazard.

SRT Comments on 06/26/25 SLOMFP Letter

Letter: PG&E did include a model where the San Luis Bay thrust extends West to the Hosgri fault, with a dip toward DCPD. However, the model suffered from four significant defects:

2. PG&E assumed an unreasonably steep dip of 40°-80° for the fault, which both reduces its “potency” (proportional to seismic moment production rate), and also keeps it as far away from DCPD at depth as possible.

SRT comments:

- Dip range allowed by the PG&E SW model is 45°-50°
- Observed dips of SWBZ faulting ranges have a mean of $38^\circ \pm 3^\circ$.
- SRT has recommended that PG&E assess the hazard change due to the revised SWBZ dip.

SRT Comments on 06/26/25 SLOMFP Letter

Letter: PG&E did include a model where the San Luis Bay thrust extends West to the Hosgri fault, with a dip toward DCP. However, the model suffered from four significant defects:

3. PG&E used a very low slip-rate (0.08-0.20 mm/year) for the fault, both due to the assumed steep dip and because PG&E ignored the isostatic factor of 6 caused by the footwall sinking 5 m for every 1 m that the Irish Hills rise.

SRT comments:

- PG&E rate for San Luis Bay fault is 0.22 ± 0.08 mm/yr compared to SRT rate of 0.29 ± 0.07 mm/yr and Bird rate of 2.0-2.8 mm/yr.
- Claim that the footwall is sinking five times faster than the Irish Hills are rising is an incorrect inference stemming from the misapplication of Airy isostasy.

SRT Comments on 06/26/25 SLOMFP Letter

Letter: PG&E did include a model where the San Luis Bay thrust extends West to the Hosgri fault, with a dip toward DCPD. However, the model suffered from four significant defects:

4a. PG&E only considered models in which the San Luis Bay fault dips under DCPD in their southwest-vergent model set (logic weight of 40%). Then, this weight was subdivided among at least 4 models, of which only one has the San Luis Bay fault extending to the Hosgri fault as a pure thrust with uninterrupted ruptures. Thus, the weight PG&E applied to this most realistic model was no more than 10%.

SRT comments:

- 40% weight is correct. 10% weight is incorrect.
- Four of ten SW sources involve failure of the San Luis Bay fault. Summing rates yields a total slip rate of 0.22 ± 0.08 mm/yr.

SRT Comments on 06/26/25 SLOMFP Letter

Letter: PG&E did include a model where the San Luis Bay thrust extends West to the Hosgri fault, with a dip toward DCP. However, the model suffered from four significant defects:

4b. There should have been a sensitivity study in which the SW fault geometry was assigned 100% weight.

SRT comments:

- In its 2015 report, PG&E did a sensitivity test that assigned full weight (100%) to the SW model.
- At the 5 Hz spectral frequency, 100% weighting of the 2015 SW model makes a negligible change to the DPCC hazard.

SRT Review of the Technical Response by Dr. Bird

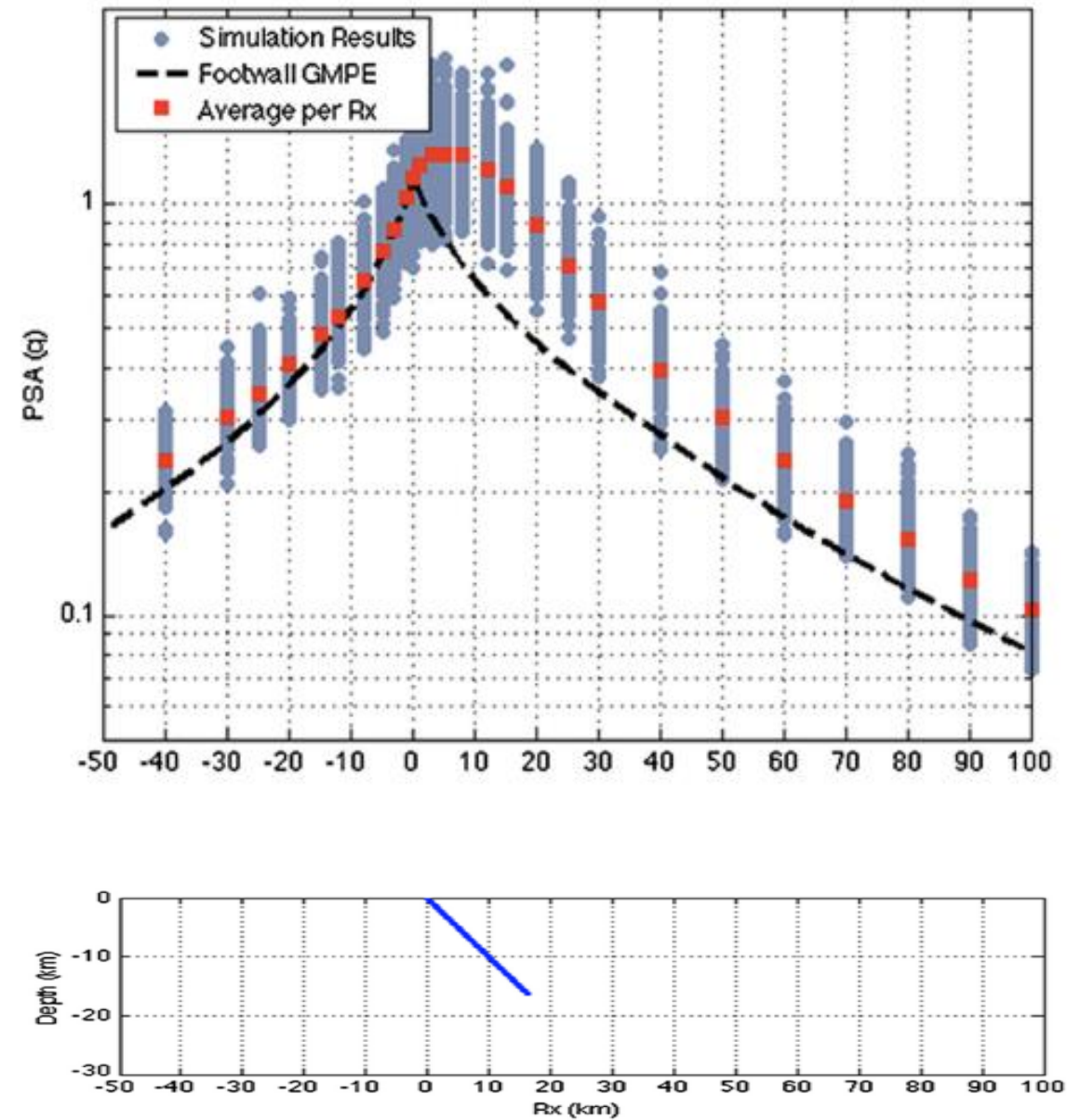
Conclusions

- Dr. Bird's response to the SRT report has not dispelled our objections to his estimates of the DCPD thrust-faulting hazard.
- We have carefully reviewed his response but found no new observations or theoretical considerations that would justify changing our overall assessment or modifying our recommendations.
- The main assertions of the Bird critique are not supported by the scientific evidence and should be discounted as arguments for high thrust-fault hazard at DCPD.

End

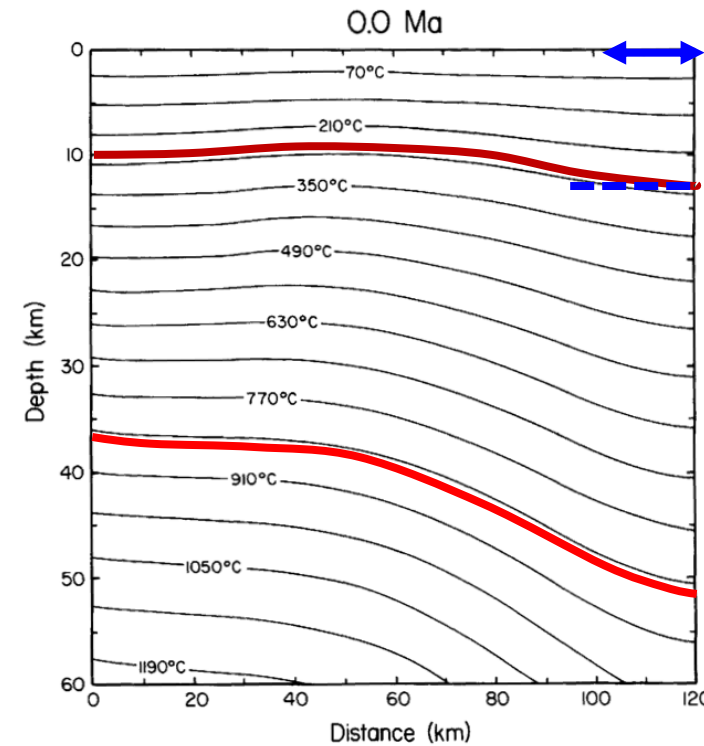
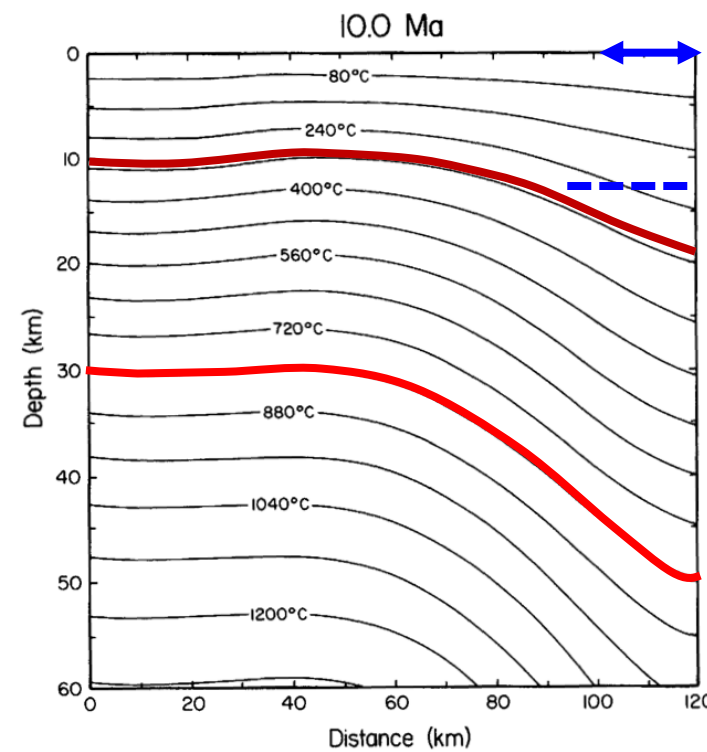
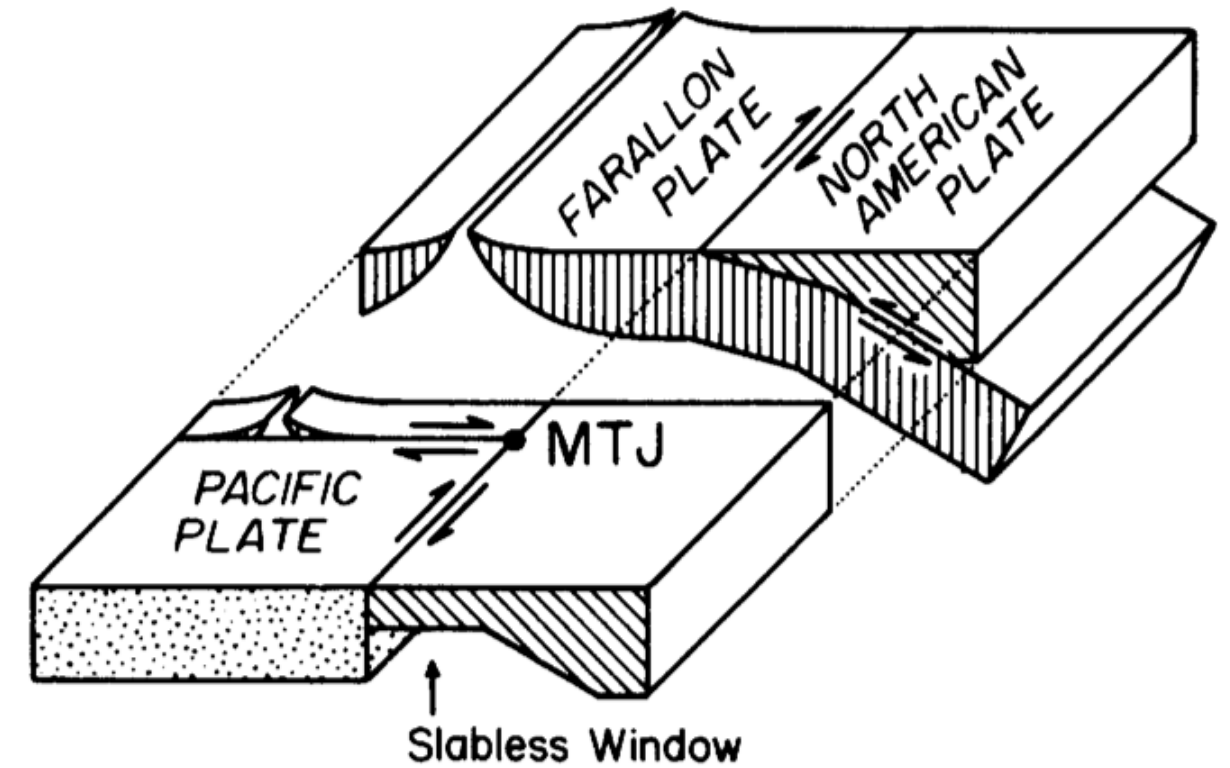
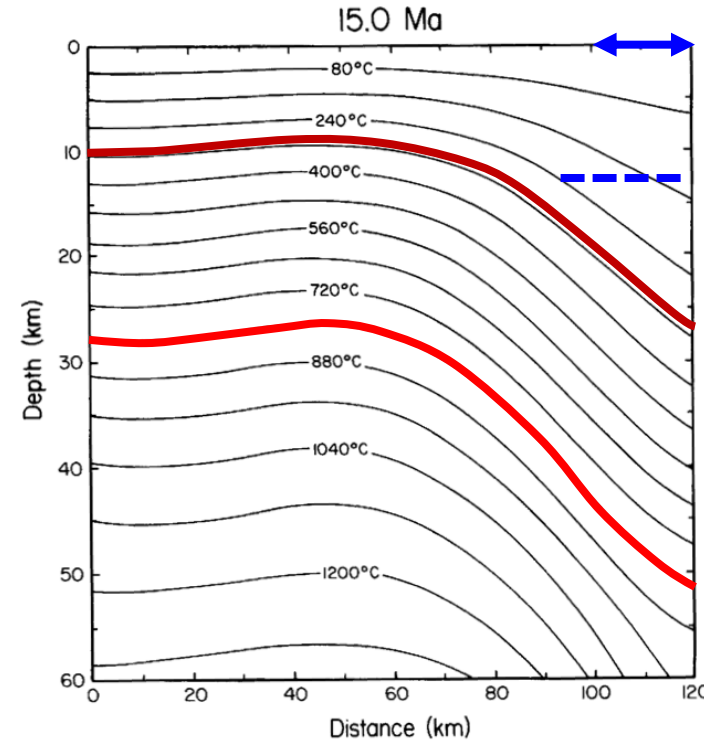
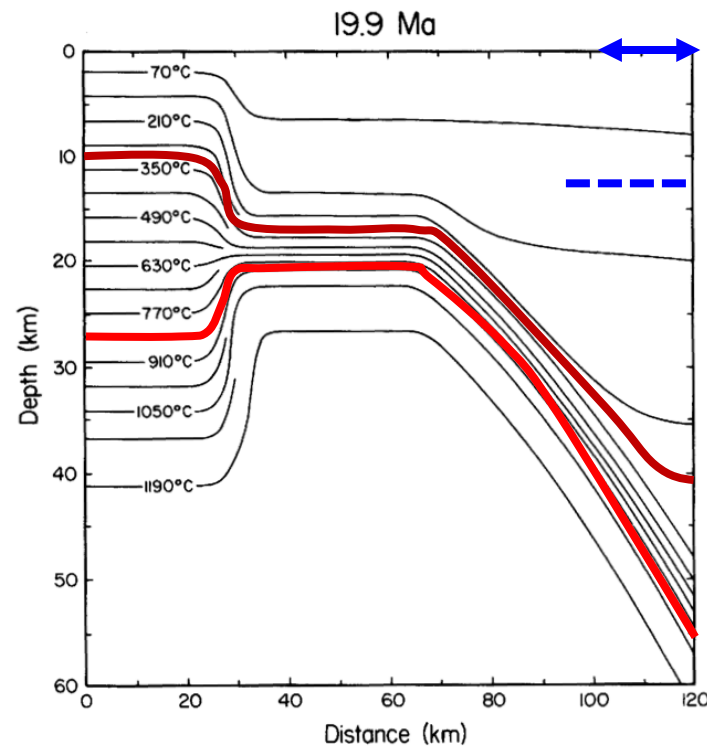
Hanging Wall Effect

Magnitude 7, Dip = 45deg, Length = 44km, zTor = 0 km, Rake = 90 deg, Period = 0.2sec



Donahue & Abrahamson (2014, Fig. 6)

Thermal Effect of Triple Junction Passage



DCPP

Base of Seismicity

300°

800°

Heasler & Surdham (1985)

Bird’s Critique of PG&E Modeling Assumptions

- a. PG&E (2015, 2024) underestimated the hazard to DCPD from thrust faulting under the Irish Hills because it made four false assumptions. Removing these assumptions increases the thrust-faulting potency rate by a large factor.

Table 4.1. Evaluation of Bird's False Assumptions			
Assumption	Truth value	Assumed by PG&E?	Impactful?
1. The Irish Hills are uplifting as a rigid block, with no internal deformation	false	no	no
2. Active thrust faults may dip at any angle	false	no	no
2a. Active reverse faults may dip more steeply than 45°	true*	yes	yes
3. Geologic structures older than ~0.33 Ma are irrelevant to seismic hazard estimation	false	no	no
4. GPS geodetic velocities are not useful for site-specific seismic hazard estimation	false	yes	no
* Bird deems this assumption to be false; evidence that it is true is given in §3.2			

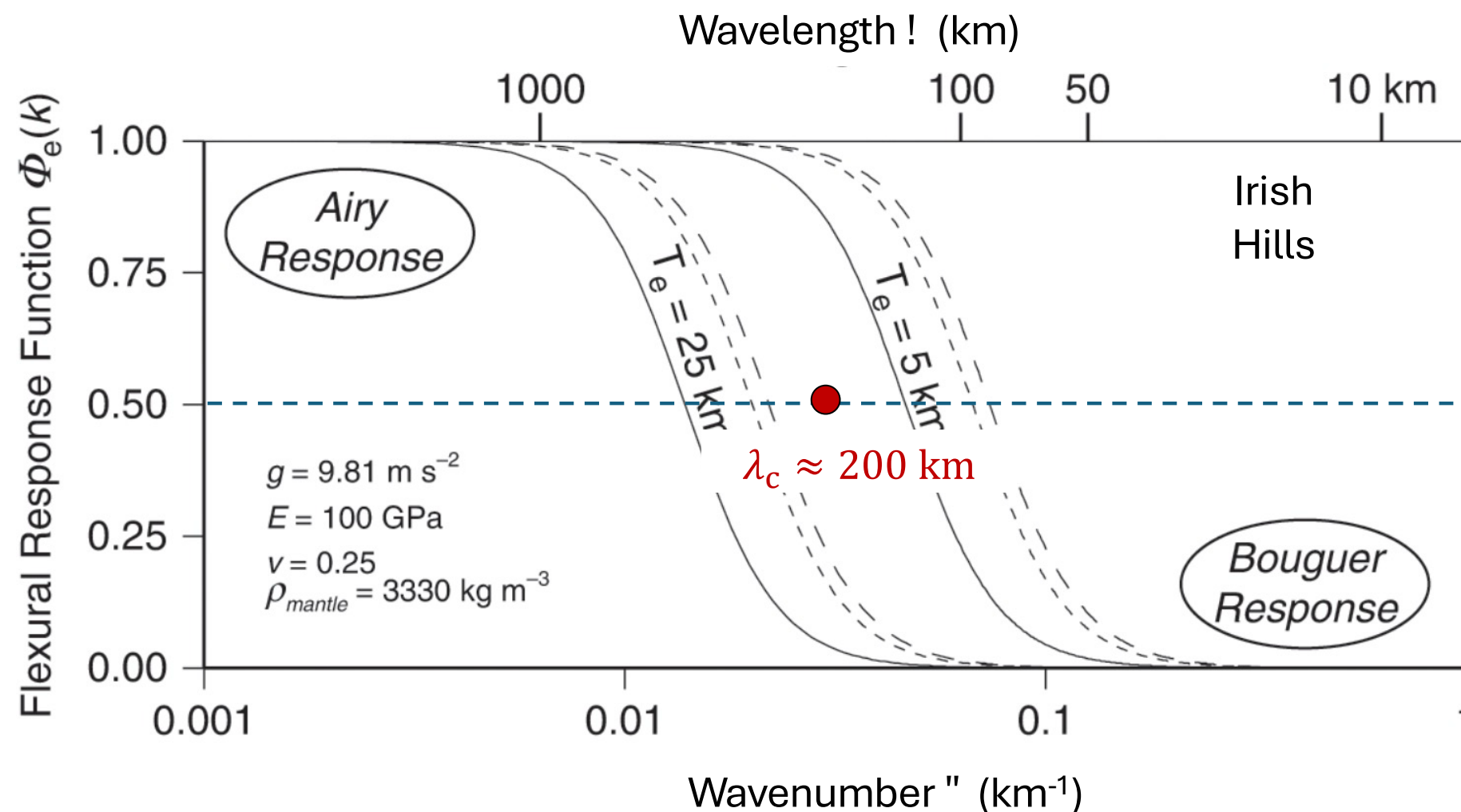
SRT finding: *Removing the four false assumptions in the development of a revised SSC would have little to no impact on the hazard estimates.*

Gravimetric Analysis

- **Regional compensation** is a more realistic isostatic model
 - Loads are supported by the flexural rigidity of the lithosphere, parameterized by T_e

$T_e \rightarrow 0$ Airy (weak plate) compensation

$T_e \rightarrow \infty$ Bouguer (strong plate) compensation



- **For Irish Hills:**
 - $T_e \approx$ seismogenic thickness ~ 10 km
 - $\lambda_c \approx 200$ km
- **Irish Hills dimension of 15-25 km is much less than λ_c**
- **Therefore, Airy isostasy cannot be applied to loads of as small as the Irish Hills**

County of San Luis Obispo Office of Emergency Services Update

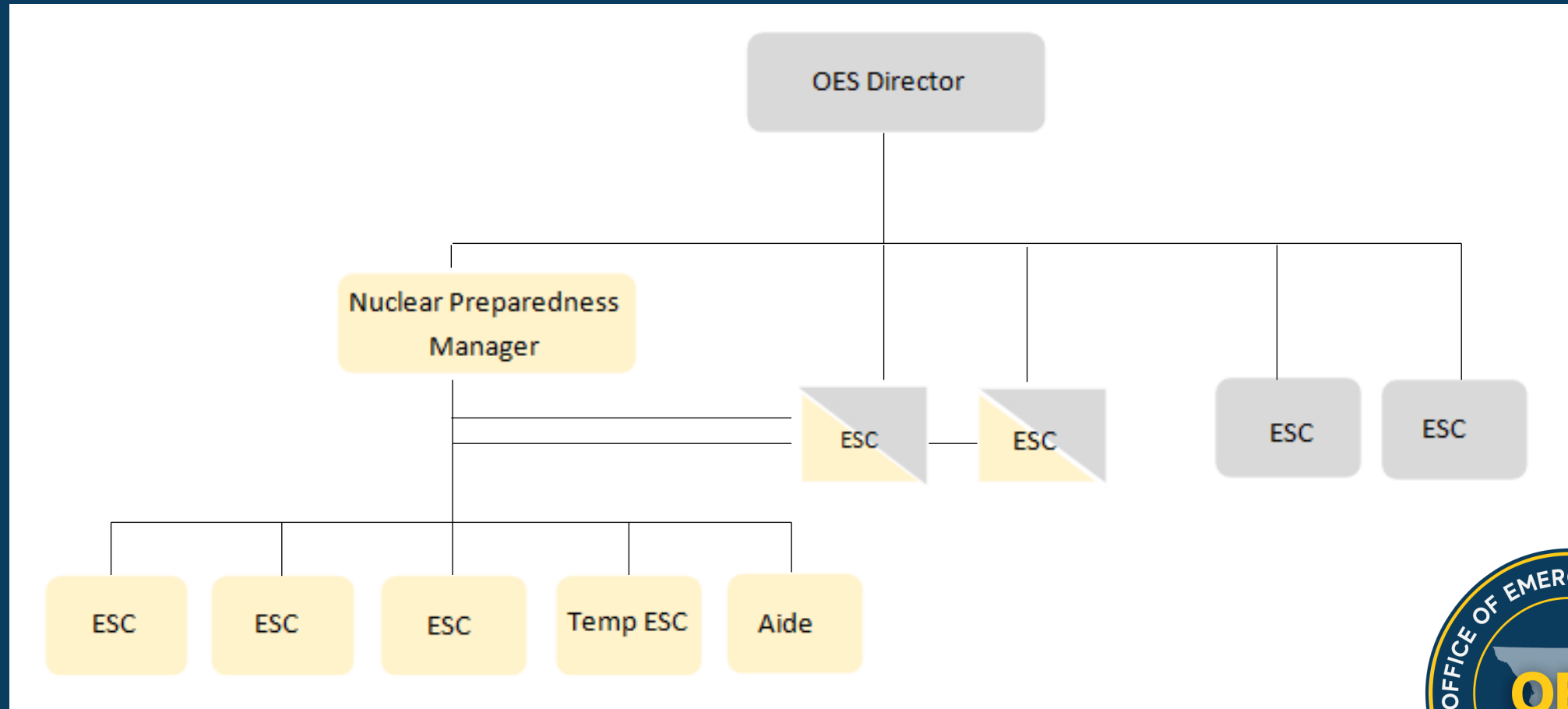


Mission

*The Office of Emergency Services ensures that the county is prepared to respond and recover from emergencies and disasters by providing leadership, coordination, and support to minimize the loss of life and property. This is achieved through an all-hazards emergency management program of **mitigation, preparedness, response, and recovery.***



County OES Organization



All-Hazard Emergency Program Updates

- Responded to the two largest CA wildfires in 2025
- Added two limited-term coordinators for all-hazards planning
- Countywide evacuation zones created
- Additional alert and notification system capabilities
 - ALERTSLO
 - Non-Weather Emergency Messages (NWEM)
- New Emergency Operations Plan (EOP) and 28 associated hazard and functional annexes
- New Mass Care cache and trailer for public sheltering

Nuclear Emergency Planning Overview

County OES leads NPP preparedness for the county

Joint County & Cities Nuclear Power Plant Plan

- Includes the cities of: Arroyo Grande, Grover Beach, Morro Bay, Pismo Beach and San Luis Obispo
- Currently 64 separate SOPs detail the County's and cities' response

Continual annual training for NPP response partners

Federally evaluated exercises rotate through an eight-year cycle:

- Plume Pathway, Ingestion & Hostile Action - Biennial
- Medical Services - Annual
- Evacuee Monitoring and Decon - 2 per 8 years
- Emergency Worker Monitoring and Decon – 1 per 8 years

Monthly maintenance of emergency facilities and equipment

Ongoing public education and outreach

Nuclear Emergency Response Overview

County's Emergency Operations Center (EOC) serves as Incident Command Post & EOC

- PG&E Emergency Operations Facility is upstairs
- EOC & EOF have integrated processes
- Four County decision makers form Unified Command (Command Group) – unique to NPP emergencies. DCPD Advisor embedded.
- Protective Action Decisions are based on intel from **joint** Field Monitoring teams and the **Unified** Dose Assessment Center
- State and federal agencies are incorporated on arrival

Decisions communicated through the **Joint** Information Center (JIC)

- County, cities, special districts, and state agencies implement decisions made by the Command Group.

Evaluated NPP Exercises

Recent:

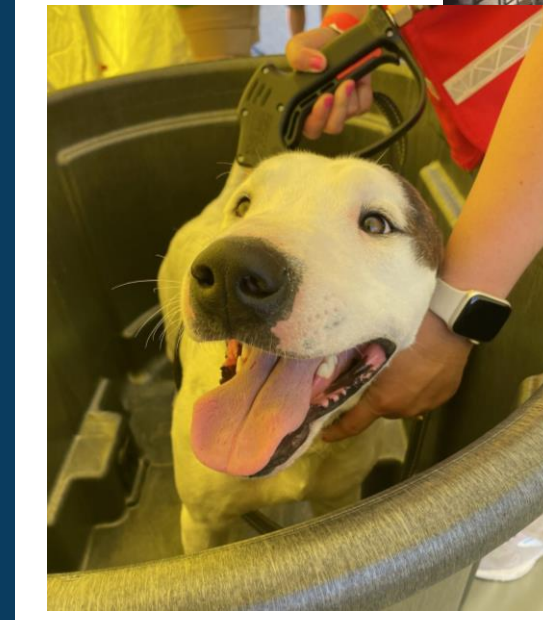
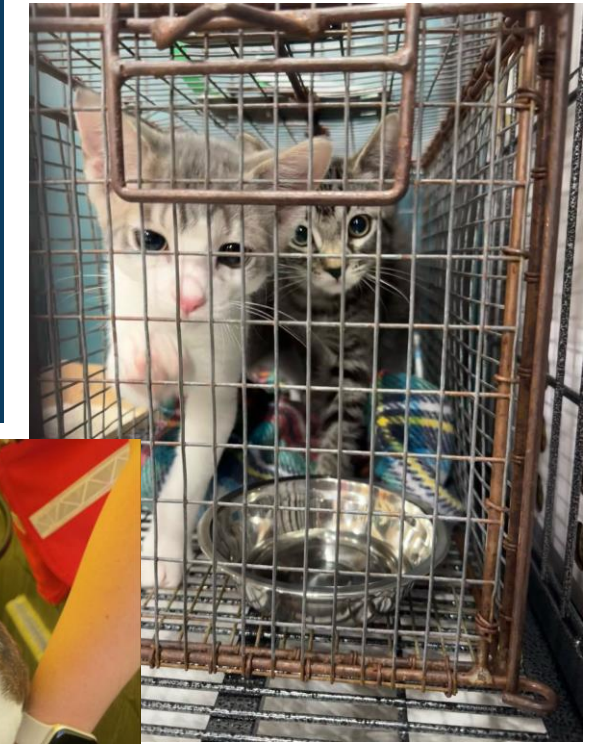
- August 2024 – Plume Pathway and Ingestion Exercise
- October 2024 - Marian Medical Services Exercise
- July 2025 – Northern Evacuee Monitoring and Decontamination Exercise
- August 2025 – French Hospital Medical Services Exercise

Upcoming:

- September 2026 – Plume Pathway Exercise
- TBD 2026 – Marian Medical Services Exercise
- February 2027 – Emergency Worker Monitoring and Decontamination Exercise

Current Nuclear Program Updates

- Household pet response:
 - Radiological monitoring and decontamination
 - Animal care and sheltering
- Field Monitoring Team upgrades
- Alert and notification system updates
- Incident management software upgrades
- Hostile action-based response equipment
- Information management and intel capabilities



DCPP & County Partnership

- Highly integrated response
- Valued and respected partnership
- Formal agreements established
- DCPP Quality Verification process helps remedy concerns

QUESTIONS?



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Diablo Canyon Power Plant: State of the Plant Update

October 23, 2025



Justin Rogers, Diablo Canyon Station Director

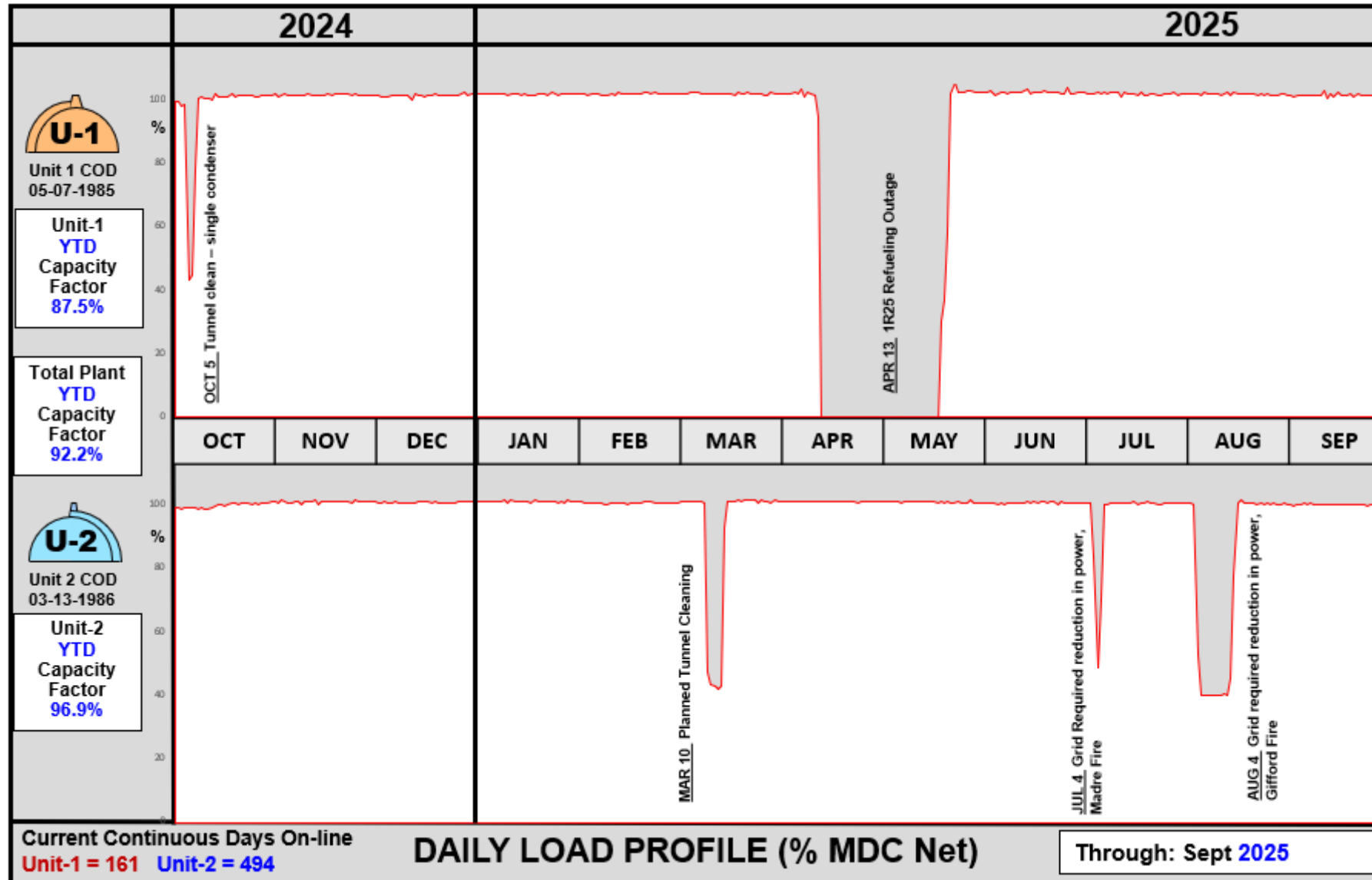
Plant Operation

- Unit 1 is safely operating at 100% power
- Unit 2 is currently executing the 2R25 Refueling Outage
- All Nuclear Regulatory Commission (NRC) Performance Indicators (PIs) are green



Daily Load Profile: Past 12 Months

Daily Capacity Factor Power History Curves



Key Events - Recently Completed Activities

- **June 2-5: NRC Biennial Requalification (BRQ) Inspection**
- **June 23-26: Nuclear Safety Oversight Committee (NSOC) Visit**
- **July 7-10: NRC Security Access Control, Security Plan Changes, Security PIV**
- **July 7-10 & 21-24: NRC Fire Protection Inspection**
- **Aug 11-14: NRC Cyber Security Inspection**
- **Aug 25-29: Emergency Preparedness Program Inspection**
- **Unit 2 Emergency Diesel Generator (EDG) Major Maintenance Outage Windows (MOWs): EDG 2-1, June 8-14; EDG 2-3, July 13-22; EDG 2-2, Aug 17-Sept 03**

Key Events- Upcoming Station Activities

- **Oct 26-Nov 8: L241 Initial License Exam**
- **2R25 Refueling Outage Estimated Completion November**
- **Dec 8-11: Nuclear Safety Oversight Committee (NSOC) Visit**

Leadership Changes

- **Maureen Zawalick - PG&E Senior Vice President and Chief Risk Officer**
- **Blair Jones - DCPD Vice President of Business and Technical Services**
- **Al Bates - Project Director**
- **Phillippe Soenen – Director, Strategic Initiatives, Performance Improvement and Organizational Effectiveness (SPORE)**
- **Mark Sciacca – FWH Project Director**



Diablo Canyon Power Plant: State of the Plant Update

Questions?

Justin Rogers
Diablo Canyon Power Plant

Diablo Canyon Power Plant: Response to Wildfires

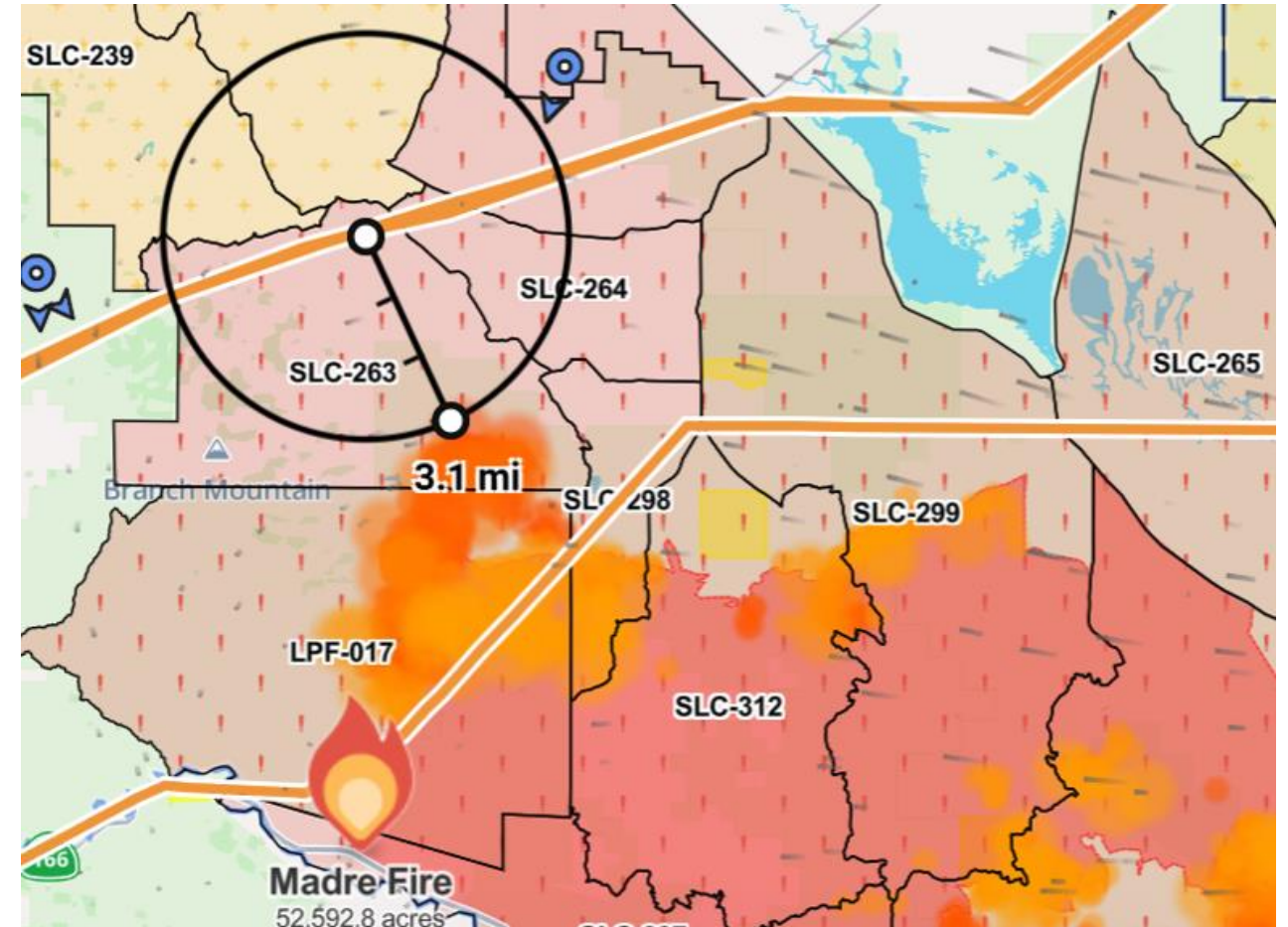
October 23, 2025



Justin Rogers, Diablo Canyon Station Director

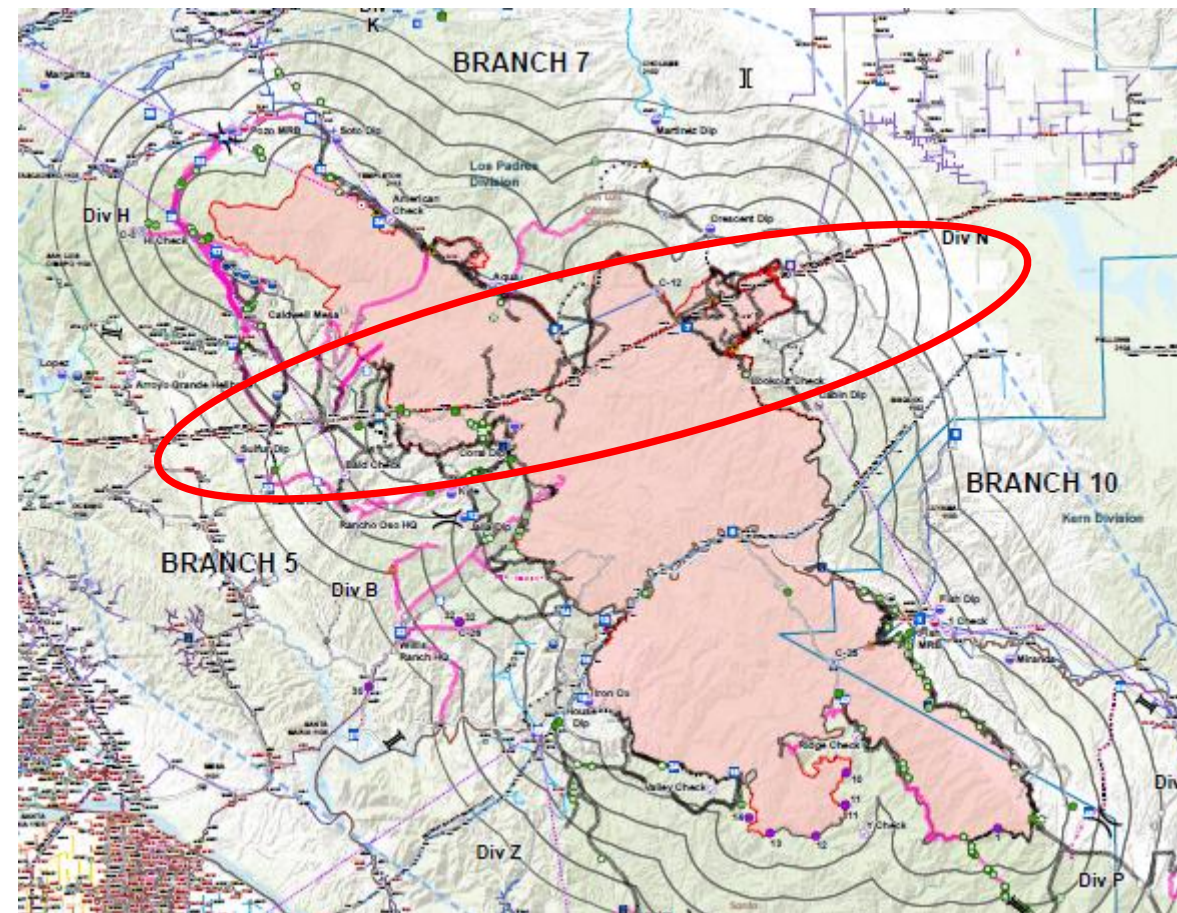
Madre Fire, July 2025

- In coordination with Transmission Grid Control Center (GCC), Unit 2 load was reduced to approximately 55%.
- The basis for reducing to approximately 55% was a measure to enhance grid stability in the event of a loss of two of the three 500 KV lines.
- U1 remained at 100% for duration of event.



Gifford Wildfire, August 2025

- In coordination with Transmission Grid Control Center (GCC), Unit 2 load was reduced to approximately 46%.
- This was a measure to enhance grid stability and prevent a Diablo Canyon Full Load Rejection when two of the three 500 KV lines were de-energized in anticipation of fire near the lines.
- U1 remained at 100% for duration of event.





Diablo Canyon Power Plant: Response to Wildfires

Questions?

Justin Rogers
Diablo Canyon Power Plant