

Shake Out

Updating and Simplifying Great ShakeOut Regional Webpages with Artificial Intelligence-Assisted Processes

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INTRODUCTION

The Great ShakeOut is an international preparedness initiative that promotes earthquake safety through annual drills. Drills began in California in 2008 and have since expanded to all U.S. states and territories, with participation worldwide coordinated by SCEC. In 2025, more than 19.3 million people participated nationwide, among 60 million people globally. ShakeOut.org serves as a registration hub and a portal featuring region-specific seismic hazard descriptions, videos and articles, and emergency readiness resources. As the website has expanded, maintaining accurate information and sitewide readability has become increasingly important. This project asks: **How can an LLM-assisted workflow efficiently update and consolidate regional ShakeOut webpages while preserving accuracy and regional relevance?** Addressing this question could streamline updates and support the website's migration to modernized infrastructure.

METHODOLOGY

This project used a two-pronged process: updating hazard resources for **56 state and territory webpages** and **4 multi-state regional pages**, and developing a standardized page format to facilitate maintenance and migration to new web and server infrastructure.

Updating Webpage Resources: A major component of revamping earthquake hazard information across 60 webpages involved cataloging and verifying existing external resources. Links that returned 404 errors, redirected users to generic homepages, or contained outdated information were replaced with relevant, authoritative alternatives. In addition, a new set of resources was compiled for each state, region, and subregion using materials from the U.S. Geological Survey, state geological surveys, educational institutions, and other reputable organizations. In total, **577 unique resources** were manually researched, evaluated, and indexed. The expanded list of resources will be used to update existing webpages and expand the amount of information they provide.

Coverage	Types of Resources and Information Included
National and Multi-Regional	Tsunami zones, induced seismicity, and local hazards..
State and Regional	Fault maps, historical earthquakes, emergency planning, and evacuation guidance.
General Purpose	Links to government pages, geological surveys, seismic networks, educational materials, maps, and videos.

Figure 1 (above): Table describing the different classifications of ShakeOut resources.

Developing Standard Page Format with Assistance from AI: Existing content and visual materials on ShakeOut.org were utilized to develop a standardized framework for regional webpage revisions. Claude Opus 4.8 and GPT 5.5 Pro generated four preliminary blueprints derived from two separate datasets containing the text and visual content from the 60 ShakeOut regional webpages. Following processing errors with Claude, GPT was used for subsequent synthesis and refinement. The preliminary blueprints were consolidated into a single document addressing both sitewide content and earthquake-hazard sections. GPT then compared the consolidated document with the original drafts to identify omitted recommendations. We manually evaluated these findings and incorporated relevant material into a reusable regional-page guideline. This guideline was subsequently condensed into a nine-page Master Regional Page Skeleton establishing consistent expectations for structure, tone, content detail, and formatting. The Colorado ShakeOut webpage served as the initial implementation case. GPT revised the page using the master template, the original webpage content, and updated resources. We then refined the draft by restoring hyperlinks, incorporating visual materials, adding captions and alternative text, and standardizing formatting. The resulting Colorado page became the model for subsequent regional revisions. Initial testing with Arizona, Georgia, and Wyoming revealed substantial variation in page structure and inconsistent preservation of hyperlinks. The revision prompt was therefore strengthened to preserve headings, section order, content depth, formatting, and links while replacing only state-specific information. It also required identification of missing resources and a final hyperlink audit. Testing demonstrated that these changes improved consistency and reduced the need for manual editing afterwards. This revised process was then applied to the Arizona ShakeOut page. By using GPT with the new Colorado page as the model, along with state-specific source materials and the revised prompt, we demonstrated that it is possible to automate the scalable revision of ShakeOut regional webpages.

STANDARD PAGE FORMAT PROCESS



Figure 2 (above): Screenshots of the original Great Colorado ShakeOut home and "Why Participate" page. Note the boxes separating information. Retrieved July 29, 2026.

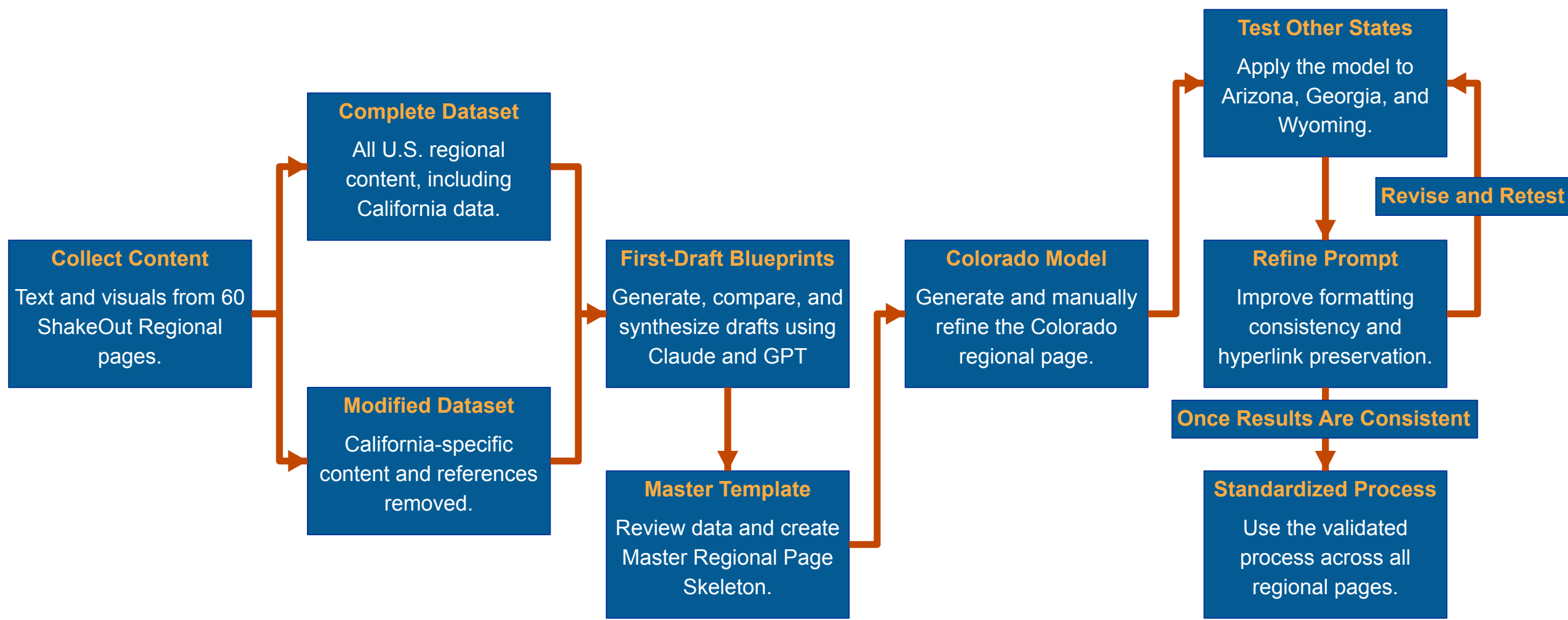


Figure 3 (above): Flowchart illustrates the steps to produce the final standardized process. Note how both datasets were synthesized to create the first-draft blueprints.

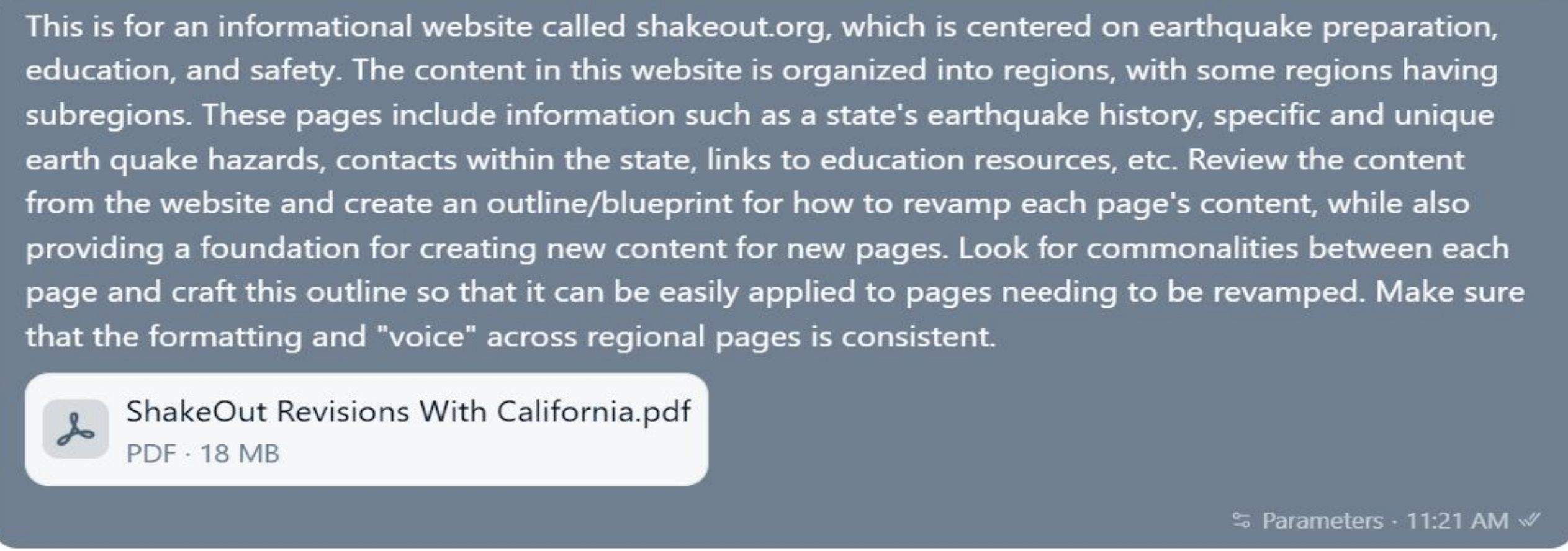


Figure 4 (above): GPT prompt used to generate a first-draft blueprint for sitewide application using the complete dataset as the reference point. Retrieved June 22, 2026.

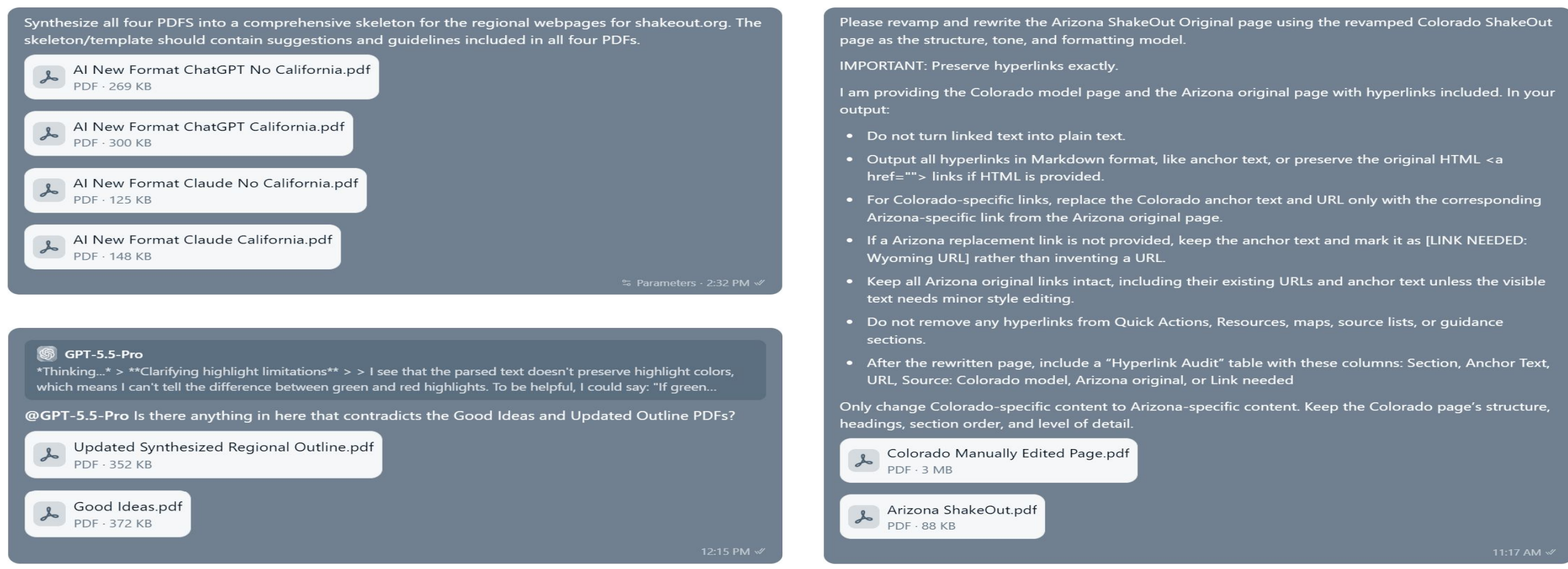


Figure 5 (above): Prompts used to synthesize first-draft blueprints into a preliminary multi-page guideline, to reinsert manually evaluated recommendations from the first-draft blueprints not included in the multi-page guideline, and to revamp and rewrite the Arizona ShakeOut page using an improved prompt that addresses hyperlink-related issues caused by ambiguity in the initial prompt. Retrieved June 22 and July 29, 2026.

RESULTS

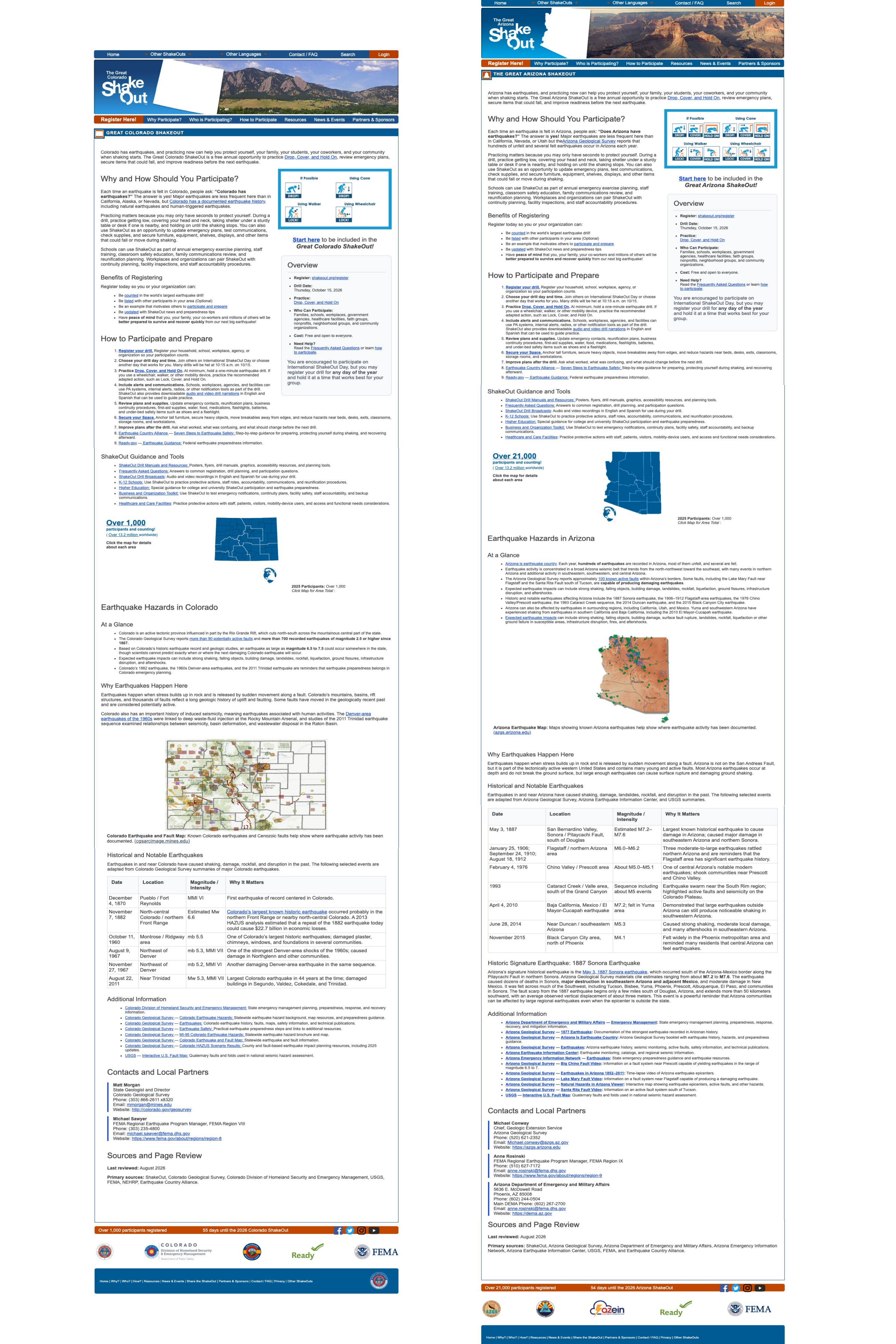


Figure 6 (above): The process resulted in updated content for regional pages, with Colorado and Arizona example pages shown. Both use a similar structure with different content. Compared to the originals, the revised pages contain more varied resources, uniform, simplified format, and their home and "Why Participate?" subpages have been consolidated into a single page format for more accessibility. Retrieved August 21, 2026.

CONCLUSION

This project demonstrates that AI can support scalable revision of the Great ShakeOut website by standardizing page format and reducing repetitive drafting. Successful implementation still requires carefully designed prompts, reliable source materials, and human review to ensure accuracy and accessibility. Testing was limited to a small number of pages, so broader application is needed to assess performance.

Future Work:

- Apply the new process across all remaining ShakeOut regional webpages.
- Quantify time savings, consistency, accuracy, and amount of manual editing required.
- Further refine prompts, input formats, and model parameters to improve reliability.

Acknowledgements

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