Future Improvements for NER_Mountain Task

1. Expand Entity Types

- Add support for new categories like rivers, landmarks, and regions.
- Update datasets with annotations for these entities and fine-tune the model for multi-class detection.
- Improve utility for geospatial applications like GIS and disaster management.

2. Explore Advanced Models

- Experiment with transformer models (RoBERTa, DeBERTa) for feature extraction and matching.
- Fine-tune these models on Sentinel-2 data for enhanced accuracy under challenging conditions.
- Combine new models with existing pipeline components for hybrid solutions.

3. Hyperparameter Optimization

- Use tools like Optuna to optimize key parameters (learning rate, batch size, dropout).
- Automate tuning for faster convergence and improved accuracy.
- Integrate optimized parameters into the pipeline for production use.

4. Data Augmentation

- Apply geometric transformations, noise injection, and brightness/contrast adjustments.
- Use libraries like Albumentations for automated augmentation.
- Improve model robustness and generalization in low-resource scenarios.

This concise roadmap focuses on boosting performance, scalability, and robustness in real-world applications.