

## A geospatial and interdisciplinary evaluation of a proposed location for the Gog and Magog narrative: The Machu Picchu–Cusco Region

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### Abstract

This study presents a geospatial and interdisciplinary evaluation of a proposed location for the Gog and Magog (Yajuj and Majuj) narrative using a structured multi-criteria framework. Moving beyond conventional Eurasian interpretations, the research applies four primary selection filters derived from recurring descriptive patterns in ancient narratives: (1) westward terminal geography, (2) quadripartite spatial organization, (3) solar observational capability, and (4) Astronomical-Environmental Convergence Zone (AECZ) characteristics.

Using these criteria, the Machu Picchu–Cusco region is examined as a potential candidate due to its unique convergence of geographical enclosure, advanced lithic construction, integrated astronomical observation features, and documented cultural centrality. The findings indicate that, while multiple regions satisfy individual criteria, this region uniquely fulfills all four filters simultaneously.

The study does not assert a definitive identification but introduces a testable and replicable framework for evaluating candidate locations within historical and interdisciplinary research contexts. The results highlight the potential of integrating geospatial analysis, archaeology, and comparative cultural models in reassessing longstanding geographical narratives.

**Keywords:** Gog and Magog; Yajuj Majuj; Machu Picchu; Cusco; Geospatial Analysis; Archaeoastronomy; Axis Mundi; Interdisciplinary Research

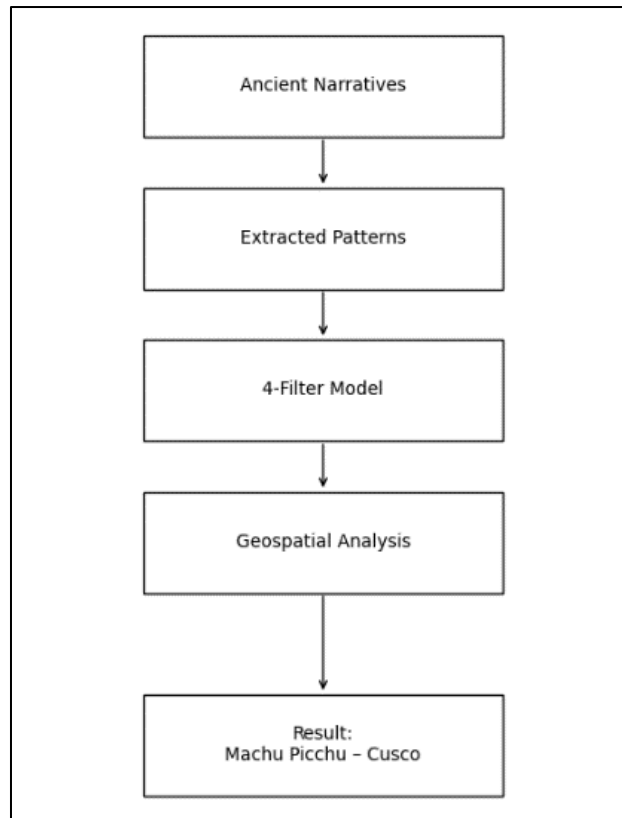
### 1 Introduction

The Gog and Magog (Yajuj and Majuj) narrative remains one of the most debated subjects across religious and historical discourse and appears in multiple primary textual sources, including the Qur'an (18:92–99) and Biblical texts (Ezekiel 38–39; Revelation 20:7–9), where it is described within a geographical and narrative framework. Descriptions of a confined population separated by a constructed barrier have led to multiple geographical interpretations, predominantly within Eurasian contexts.

However, these interpretations often fail to align with a comprehensive set of environmental, structural, and spatial indicators derived from textual descriptions. This study introduces a multi-criteria selection model to evaluate potential candidate regions based on measurable characteristics rather than singular assumptions.

Within this framework, the Machu Picchu–Cusco region is examined as a candidate due to its convergence of geographical, astronomical, and cultural features.

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**Figure 1** Graphical abstract showing the study workflow from textual pattern extraction to multi-criteria geospatial analysis identifying the Machu Picchu–Cusco region

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## 2 Literature Review

Previous research has associated the Gog and Magog barrier with:

- The Caucasus region
- The Caspian Gates
- The Great Wall of China

While historically grounded, these interpretations often lack:

- Clear natural enclosure
- Evidence of integrated observational systems
- Alignment with broader spatial cosmologies

Recent interdisciplinary research in archaeology and geospatial science supports the exploration of alternative hypotheses grounded in environmental and structural analysis.

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## 3 Methodology

### 3.1 Textual Pattern Extraction

Key descriptors are interpreted as patterns:

- Directional movement
- Environmental extremities
- Structural containment

### 3.2 Multi-Criteria Selection Filters

#### 3.2.1 Filter 1: Westward Terminal Geography

Restricts candidate regions to extreme western locations relative to early civilizations.

#### 3.2.2 Filter 2: Quadripartite Spatial Model

Evaluates regions exhibiting four-part territorial or symbolic organization centered on a node, as observed in Cusco.

#### 3.2.3 Filter 3: Solar Observational Capability

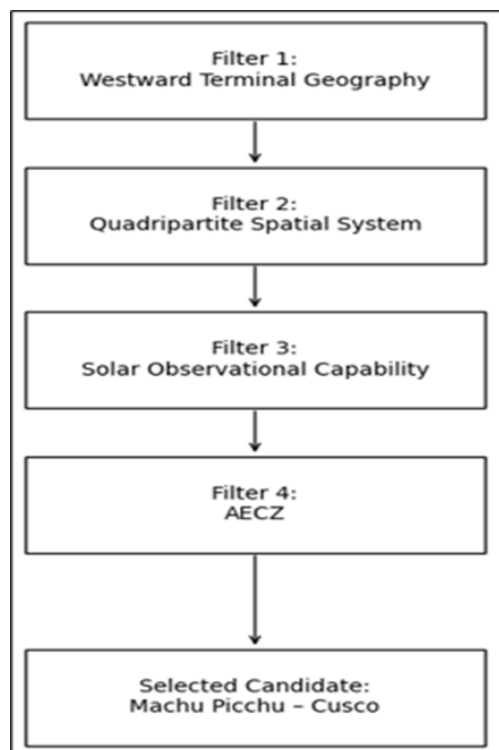
Candidate regions must demonstrate:

- Continuous solar visibility across horizons
- Stable observation points
- Presence of tracking features

#### 3.2.4 Filter 4: Astronomical-Environmental Convergence Zone (AECZ)

Defines regions where:

- Solar, lunar, atmospheric, and topographical phenomena converge
- Observational and ritual activities are supported



**Figure 2** Multi-criteria selection framework illustrating the four-filter model used to evaluate candidate locations for the Gog and Magog narrative

## 4 Findings

### 4.1 Geographical Enclosure

The Machu Picchu region is characterized by steep mountainous formations, natural isolation, and limited accessibility, consistent with containment descriptions.

**4.2 Structural Engineering**

The site demonstrates advanced stone construction techniques with high durability and precision, indicating sophisticated engineering.

**4.3 Solar Observation System**

Architectural elements enable east-to-west solar tracking through fixed observation points, suggesting structured monitoring of solar movement.

**4.4 Lunar Observation**

Elevated cave structures indicate potential nocturnal celestial observation, complementing solar tracking.

**4.5 Quadripartite Organization**

The region centered around Cusco reflects a four-part territorial system, aligning with cross-cultural spatial models.

**4.6 Environmental Dynamics**

High-altitude atmospheric conditions produce strong wind patterns and enhanced visibility, contributing to environmental uniqueness.

**4.7 Centrality Concept**

Ethnohistorical sources describe the region as a central or “navel” location, consistent with axis mundi traditions.

**Table 1** Comparative evaluation of candidate regions based on multi-criteria framework

| Criteria                  | General Mountain Regions | Machu Picchu–Cusco |
|---------------------------|--------------------------|--------------------|
| Western extremity         | Yes                      | Yes                |
| Enclosure                 | Yes                      | Yes                |
| Construction              | Yes                      | Yes                |
| Quadripartite system      | No                       | Yes                |
| Solar observation system  | No                       | Yes                |
| Environmental convergence | No                       | Yes                |

**5 Conclusion**

This research presents a structured approach to reassessing the Gog and Magog barrier hypothesis. The Machu Picchu–Cusco region emerges as a uniquely qualified candidate based on multi-variable analysis. While not conclusive, the study establishes a foundation for future interdisciplinary investigation.

**Compliance with ethical standards**

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*Disclosure of conflict of interest*

The author declares no conflict of interest.

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