Qeios

Peer Review

Review of: "Solar Flare Spectroscopy at Pic du Midi Observatory (1956–1968) in the Frame of the International Geophysical Year"

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The article discusses the solar research conducted at Pic du Midi Observatory from 1956 to 1968 as part of the International Geophysical Year, highlighting instrumental developments and scientific results.
IGY focused on solar activity studies, including solar flares and sunspot activity.
Collaboration among global solar observatories was encouraged to monitor solar phenomena continuously. Automatic heliographs and magnetographs were developed to enhance solar observations.
The program aimed to correlate solar events with terrestrial impacts, such as geomagnetic storms.

The 4-metre and 9-metre flare spectrographs played a key role in advancing solar spectroscopy, providing high-resolution spectral diagnostics of solar flares. These instruments were developed under the leadership of Raymond Michard and operated primarily at Pic du Midi. Important discoveries were made regarding solar flares and magnetic fields. Notable findings also included the relationship between metallic line intensity variations and hydrogen line variations.
The article is well-described and detailed, but there are areas where improvements can be made to enhance clarity, readability, and accessibility for a broader audience. Below are critical comments and suggestions:

1. The introduction could be streamlined to focus more on the specific goals of the research rather than the broader context of IGY.

2. The article is dense with technical details, which may overwhelm readers unfamiliar with solar spectroscopy. Consider breaking the content into more digestible sections with subheadings for easier

doi.org/10.32388/CTGXBS

navigation. The "Main Results" section could be expanded to include a summary of the scientific impact of the findings, linking them to modern solar physics.

3. The tables are informative but could benefit from captions that explain their significance in simpler terms.

4. While the figures are helpful, their captions are often brief and lack context. Expanding captions to explain the relevance of each figure to the research would improve comprehension. Some figures (e.g., Figure 7 and Figure 16) are highly technical and may require additional annotations or simplified versions for clarity.

5. The references are extensive but could be better integrated into the text. For example, linking specific findings to their corresponding references would strengthen the article's credibility. Some references are cited multiple times without clear differentiation. Consolidating or clarifying their relevance would improve readability.

6. The conclusion is concise but could be expanded to discuss the broader implications of the research for modern solar physics and space weather studies. Highlighting future directions or unanswered questions would add depth to the article.

By addressing these points, the article can become more accessible and impactful, appealing to both specialists and a broader audience interested in solar physics and historical scientific advancements.

Declarations

Potential competing interests: No potential competing interests to declare.