

EVOLUTION OF SESC REGION 4520 (JUNE 1984): BIRTH OF A BACKWARDS-GROWING  
SUNSPOT GROUP

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ABSTRACT. In the observing campaign of June 1984 the participants could observe the birth of a sunspot group, which afterwards had the designation SESC 4520, Солнечные Данные № 135. The interesting property of this region was that contrary to the usual, the following part evolved more quickly and regularly, only after several days the group took a typical bipolar form. On the base of whole-disk photoheliograms we study the evolution of this group in comparison with usual bipolar ones.

РАЗВИТИЕ ГРУППЫ SESC REGION 4520 (ИЮНЬ 1984): РОЖДЕНИЕ ГРУППЫ СОЛНЕЧНЫХ ПЯТЕН, РАЗВИВАЮЩИХСЯ НАОБОРОТ: В программе наблюдений июня 1984 г. участники могли наблюдать рождение группы солнечных пятен, которая впоследствии получила обозначение SESC 4520, Солнечные Данные № 135. Интересная особенность этой группы состояла в том, что вопреки обычному, более быстро и регулярно развивалась хвостовая часть, только после нескольких дней группа приняла обычную биполярную форму. На основе снимков всего диска Солнца изучается развитие этой группы в сравнении с обычными биполярными группами.

VÝVOJ SKUPINY SLNEČNÝCH ŠKVŔN SESC 4520 (JÚN 1984): VZNIK SKUPINY ŠKVŔN, KTORÁ SA VYVÍJALA OPAČNÝM SPÔSOBOM: Počas koordinovaného pozorovacieho obdobia SK v júni 1984, účastníci programu mohli pozorovať vznik skupiny slnečných škvŕn, ktorá neskôr získala označenie SESC 4520, Solnechnye dannye No. 135. Táto skupina sa vyznačovala tým, že bola výnimkou z bežného pravidla. V prvých dňoch existencie skupiny SESC 4520 výrazne sa rozvíjala iba zadná časť skupiny a bola dominujúcou časťou skupiny. Po uplynutí niekoľkých dní skupina SESC 4520 nadobudla zvyčajný bipoлярný tvar. Vývoj skupiny bol skúmaný na zá-

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SESC 4520

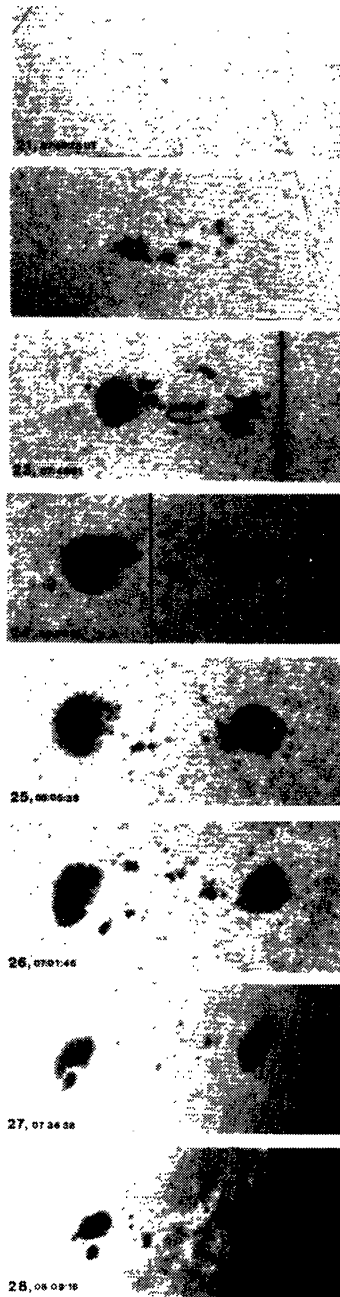


Fig. 1: The birth and evolution of SESC Region 4520 on photoheliograms of the Debrecen Observatory, taken approximately.

klade sekvencie celodiskových spektroheliogramov a bol porovnaný s vývojom bipolárnych skupín, ktorých celý vývoj prebieha podľa bežného scenára.

In June 1984 there was a cooperative observing campaign to observe the birth and evolution of a sunspot group. The area to be observed was selected successfully, as the sunspot group Солнечные Данные № 135 (SESC/NOAA 4520) was born on the disc during the observations on June 21.

This group at a first look emerged and developed as a regular, small, bipolar group. The unusual feature of its evolution was, that the larger and more regular spot in the beginning was not the leader, but the follower one (see Figure). Only on June 25 the group takes a more or less normal appearance, and afterwards both the leader and follower large spots begin to disintegrate. On June 28, the group being near the West limb, both large spots strongly diminished their area, and broke up to several pieces.

The proper motions in the group followed the usual pattern: in the beginning a strong divergence, the pores near the larger spots converging and coalescing to them. The flare activity of the group according to Solar-Geophysical Data (Boulder, USA) was moderate, only one flare of importance 1N was observed on June 23, all the remaining were subflares. The subflares begun already a day earlier in the region than the spots, on 20 June. The number of subflares each day, beginning from 20 June was: 1, 1, 9, 8 (this day the 1N flare), 2, 6, 5, 1, 1, 0, 1. The activity also follows the usual pattern: in the beginning, when rapid evolution takes place, there are more flares, then when the group reaches maturity - less, afterwards, when decay begins, again more.

Concluding this preliminary description of the group, we can say, that its evolution was usual, and its uncommon appearance in the first days did not show up neither in the proper motions, nor in flare activity.

A detailed study of the proper motions in this group will be published in the Publications of the Debrecen Heliophysical Observatory. Other details of the evolution of this group are described by Borovik et al. (1986).

#### REFERENCES

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