Long-term Variations of Sunspot Properties

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Average number of sunspots in active region



Kislovodsk data (1954-2012).



Estimating sunspot number using group number



(Data from NGDC)

W=10*Ngr+Nsp





Long-term (100 years) variation in Rs/Rg?

Long-term variation in areas of sunspots



22-year variation in magnetic field of sunspots?





Напряженность магнитного поля в ядрах зависит от их площади.

Long-term variations in sunspot properties



9

Conclusions

Long-term variations in sunspot group properties suggest that average number of sunspots per group gradually decreases over last several cycles. When the number of sunspots in a group is large, the area of sunspots decreases, and thus, the average field strength in sunspots also decreases.