

9. Current status and future of the ski research

Our ski research is at the stage analogous to the period of Tycho Brahe described in section 2.1. This is the starting point of the science. If we can express ski motion on a sheet of paper as a function of position and time, we can derive rules (rules of ski motion; for example, the β_0 rule which we discovered)²⁾ and clarify the mechanism of the motion (for example, the sense of making a ski turn which we discovered).²⁾ This is analogous to the structure of the universe being clarified by Kepler's laws and Newton's laws.

Many researchers have measured various factors such as vibration of skis, cutting force, load on skis, angle of joints of a skier, twist of the foot, and twist of the hip. The changes in these factors should have some relation to the ski motions. Many of the above data are expressed as a function of time. Expression as a function of time is an easy method of presenting experimental data. If data can be expressed as a function of position, velocity, acceleration and coefficient of friction, then some aspects of ski motions may be further clarified, which will provide some clues to the clarification of ski-motion mechanisms.

10. Closing remarks

Recording the motions of a skier onto a sheet of paper is difficult. On-paper recording is one of the most difficult tasks of ski research. As described in section 2.2, researchers avoided doing this and nobody had made any attempts at it, perhaps because of the difficulty. In 1984, we came up with the idea of drawing the locus of skis using photographs of the ski descent. The paper relating to this idea²⁵⁾ was published in 1995; at that point, we had spent ten years on this study.

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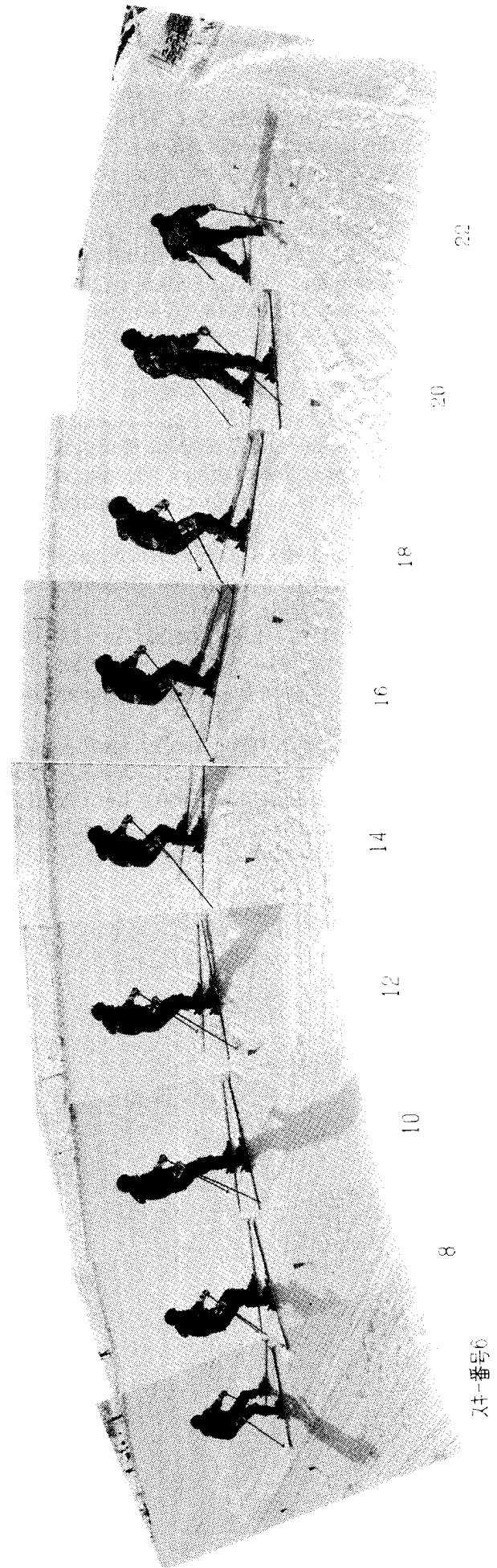


Fig. 22. Photographs of ski motion illustrated in Fig. 20. Skier: Ichino, at Hoonoki-daira Ski Resort, taken on February 4, 1994.

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