The Scientific Research Project at the III World Championships in Athletics: Preliminary reports

The III World Championships in Athletics, held in Tokyo from 24 August to 7 September 1991, will be remembered above all for the World Records set in the men's 100 metres, Long Jump and 4 x 100 metres Relay. However, as anyone who was present or watched the championships on television will agree, there was much more to Tokyo 1991.

Looking only at the quality of performance, it can be said that the combination of 1551 of the world's best athletes from 164 countries, a total of 581,462 spectators and the excellent facilities of the Tokyo Olympic Stadium pushed competitive standards in almost all the events to incredible new heights. In all, 16 championship best performances, 19 area records, 2 world junior records and at least 100 national records were set in Tokyo. It was, in the words of the 100 metres champion Carl Lewis, 'the greatest track and field meeting ever'.

The III World Championships, like the preceding two, presented an excellent opportunity for the collection of scientific data on top athletes in action. This information would be of interest to athletes, coaches and the media alike. With this in mind, and following the recommendation of its Coaches Committee, the Japan Amateur Athletic Federation decided to set up a biomechanics research project.

Professor Michiyoshi Ae of Tsukuba University was appointed to lead the project team which comprised JAAF staff members, notable Japanese sport scientists and a number of excellent volunteers. The project became an international effort when a group sponsored by the International Athletic Foundation and under the leadership of Professor Gert-Peter Brüggemann joined the Japanese team, bringing the total of project workers to 74.

During the championships the project team gathered data using 16 mm high-speed cameras, high-speed and normal video cameras, and photo-cells located in more than 90 positions around the stadium and on the road event courses. Data reduction and analysis are now underway at laboratories in Japan and Germany. A final report and video containing performance descriptions of all events, time analyses of the track events and biomechanical analyses of selected events are now being produced, with completion scheduled for mid-1993.

In the meantime, this preliminary report, containing some of the most interesting data and conclusions from selected events, has been produced for New Studies in Athletics by members of the project team and is presented in the following sections.

Information on how to obtain copies of the final report will be published in future issues of NSA.