



RISK ASSESSMENT OF VEER OFF DURING LANDING

The purpose of study and the data considered

The purpose of this work is to evaluate impact of external factors affecting veer off risk and to get knowledge how to reveal the situations leading to sufficiently increased risk under actual conditions of landing.

The basic factors considered are the following:

- RWY surface contamination type (categorical parameter);
- season (categorical parameter);
- crosswind speed (continuous parameter).

There are considered as veer off preconditions the values of some parameters in some checkpoints of landing trajectory.

The subject of processing are the raw data of on-board parametric recorder and METAR data base containing information about the weather and RWY surface conditions.

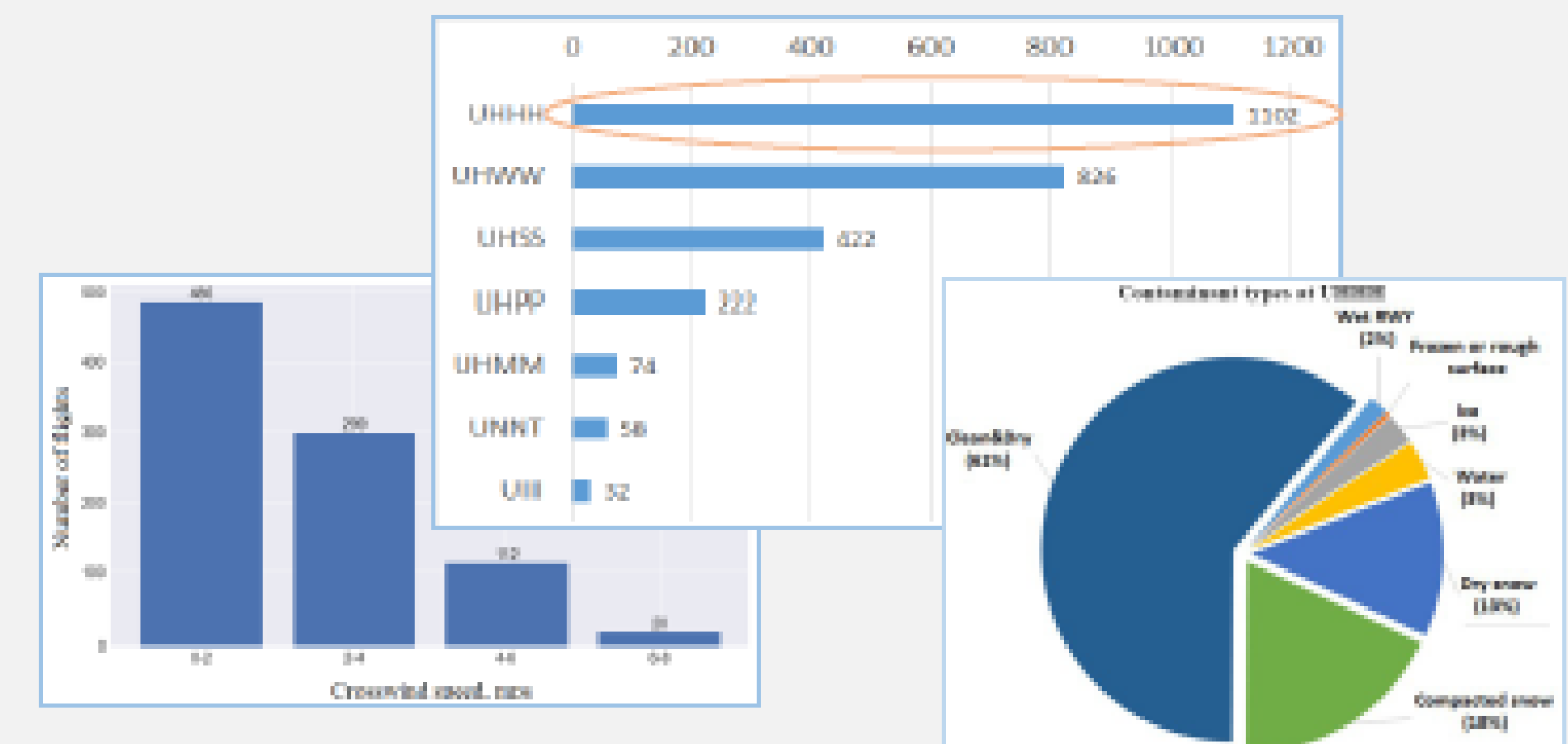
Metrics of landing run

Despite the fact that (generally) frequency of veer off is high enough, it is very difficult in practice to form a representative sample of data suitable for processing based on the methods of applied mathematics.

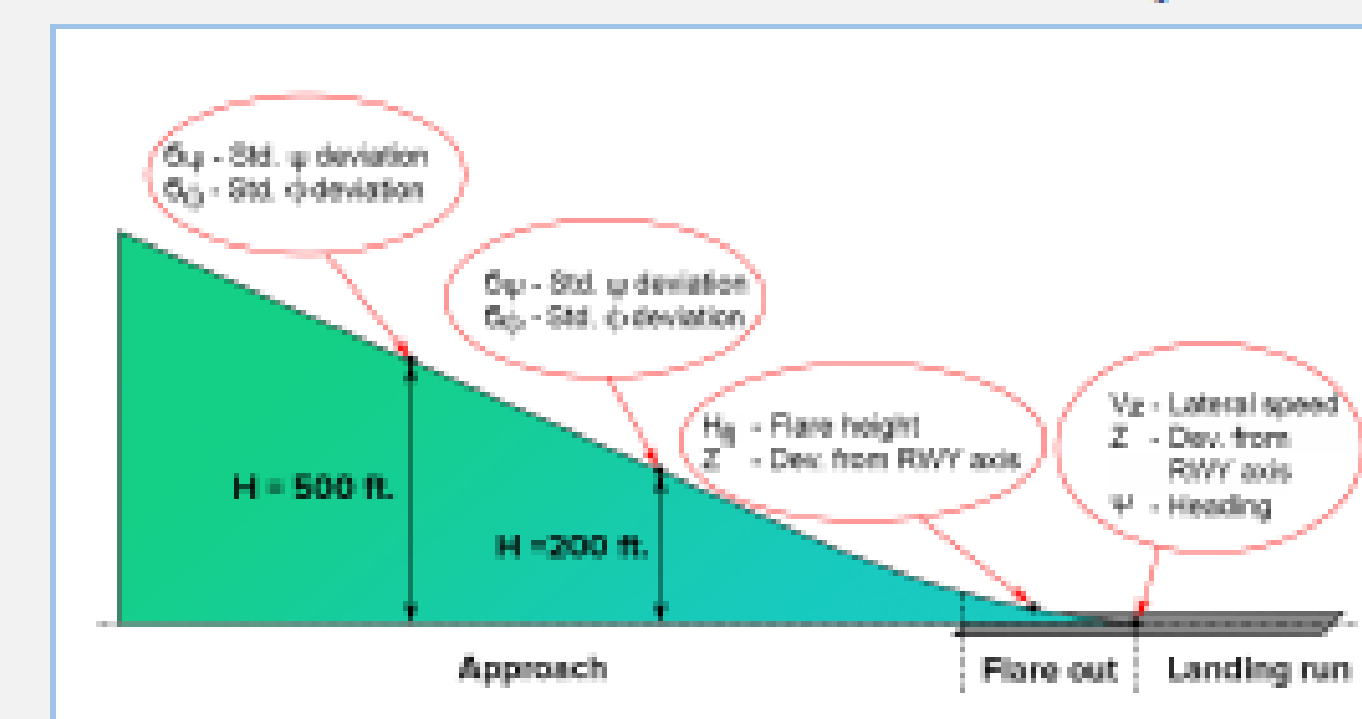
There is proposed some approach of solving the problem, when the risk of veer off is estimated basing on the analysis of successful landings. There is utilized for this purpose new metrics of landing run named as "TrackIndex - TI" which characterizes somehow the deviation of actual landing from its ideal form. It is assumed that the higher value of the metrics corresponds to the greater risk of veer off.

There are taken into consideration a few versions of proposed metrics based on such parameters as: lateral deviation from the runway axis (TI_z), lateral load factor (TI_{nz}), and rudder pedals position (TI_{Xr}).

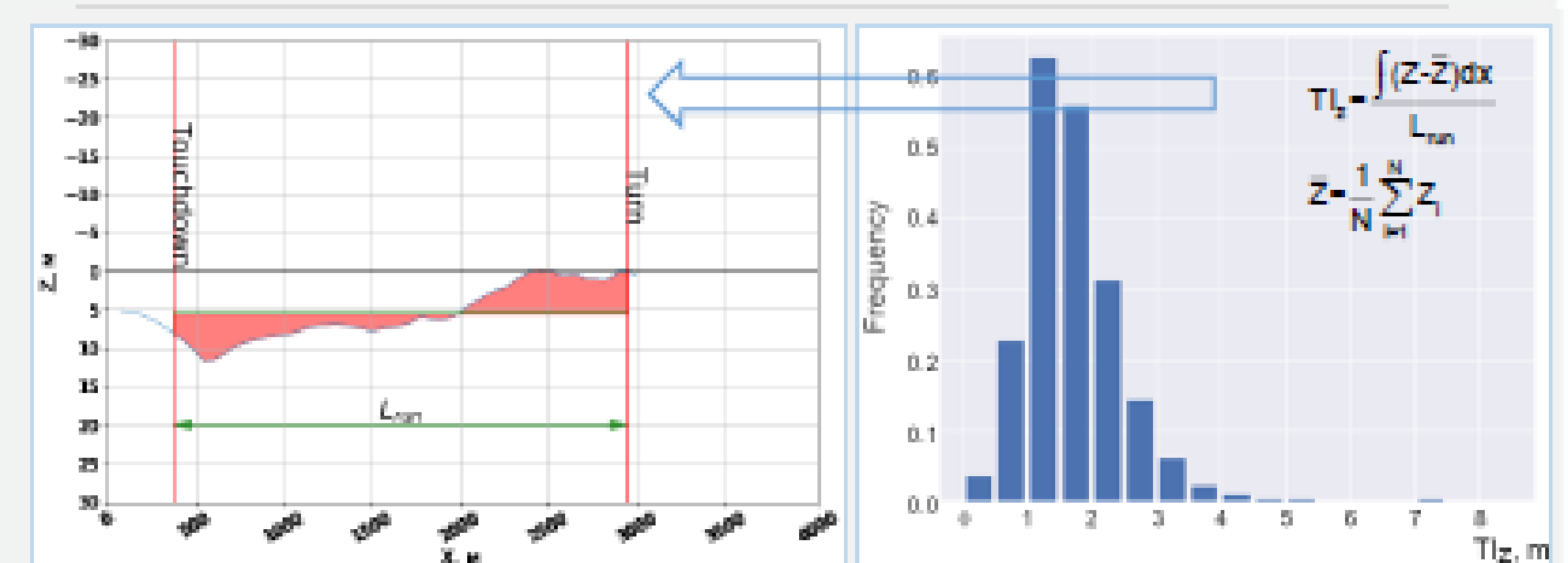
INITIAL DATA FOR ANALYSIS



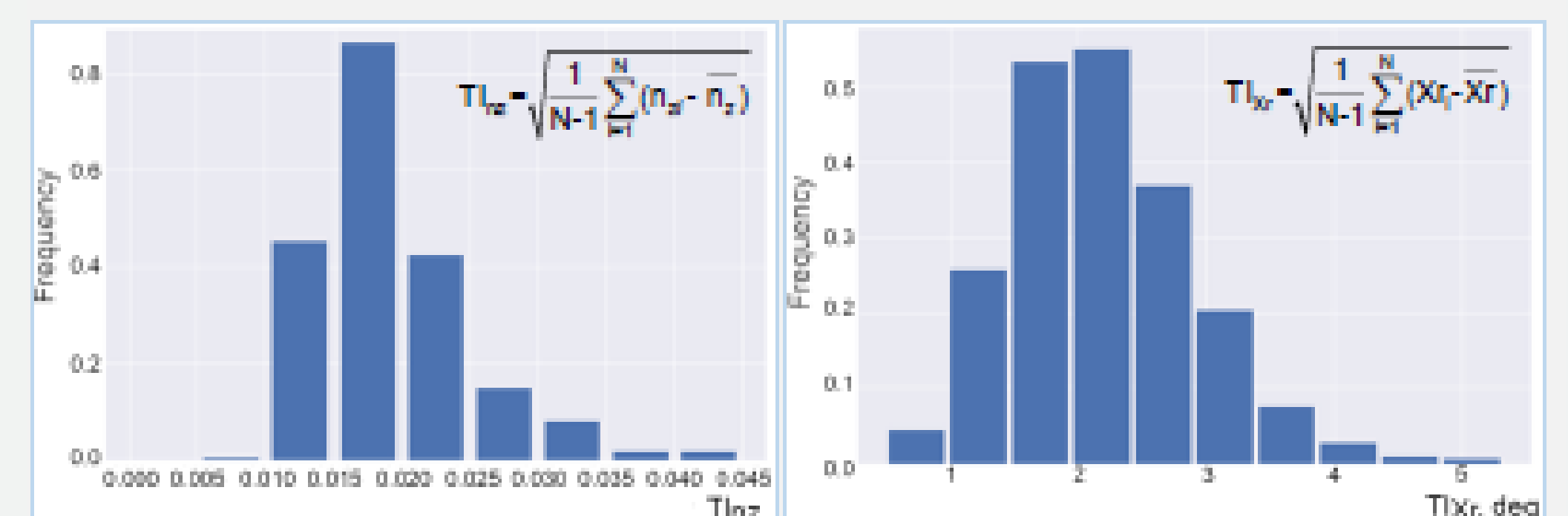
WHERE TO FIND VEER-OFF PREREQUISITES?



HOW TO MEASURE THE "QUALITY" OF LANDING RUN?



ALTERNATIVE METRICS



METRICS INTERCONNECTION

