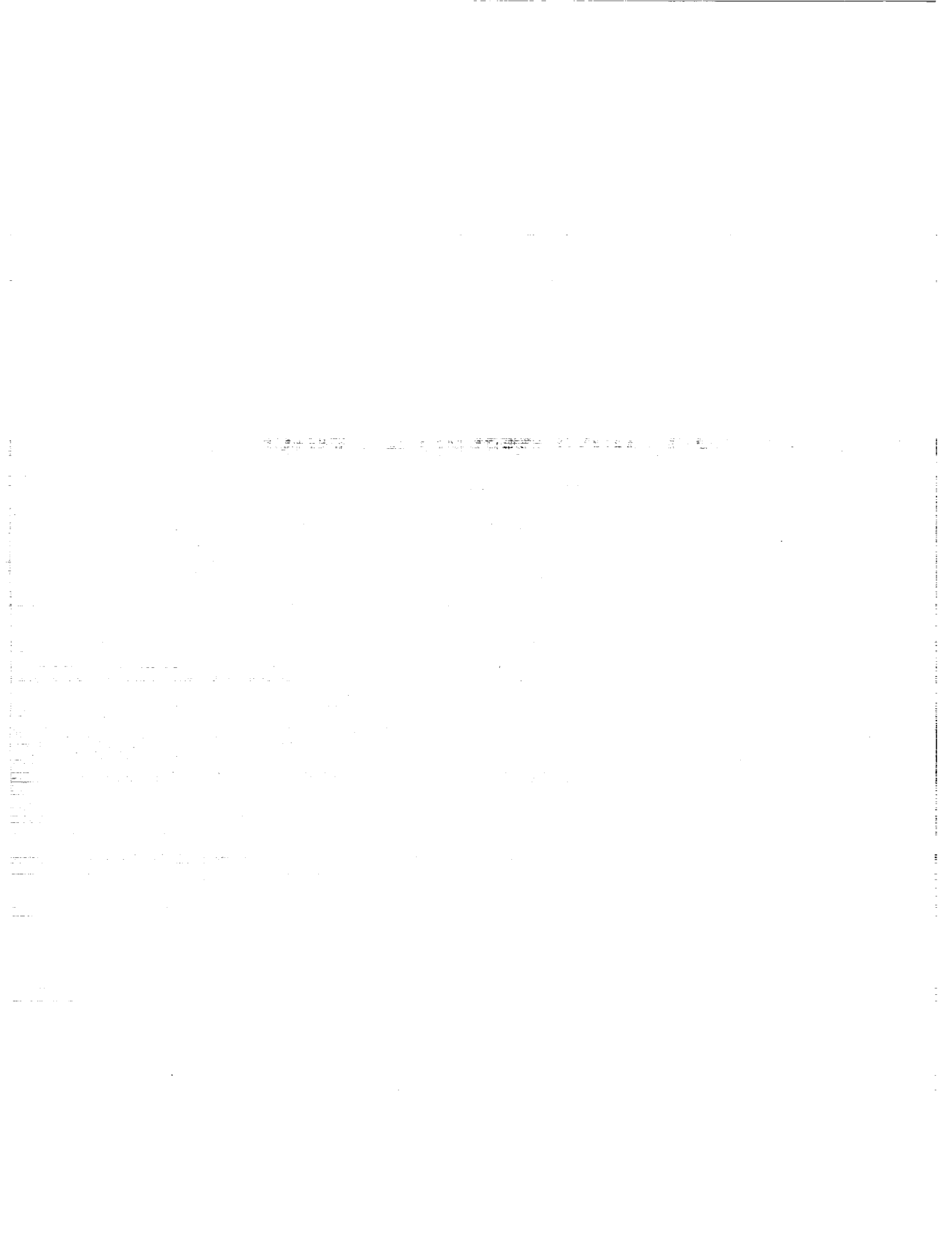


**ASSESSING INFORMATION TRANSFER IN
FULL MISSION FLIGHT SIMULATIONS**

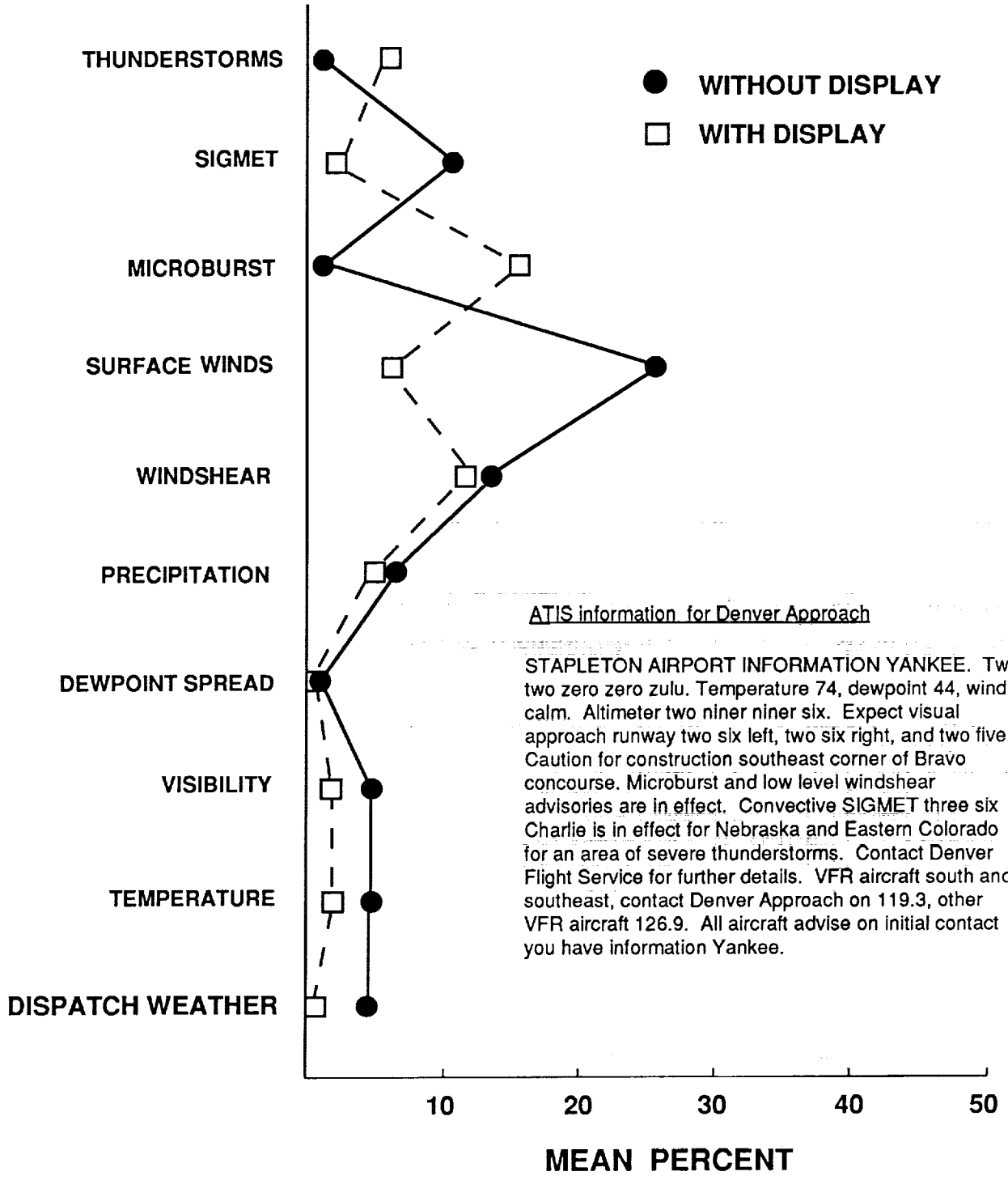
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ABSTRACT

Considerable attention must be given to the important topic of aircrew situation awareness in any discussion of aviation safety and flight deck design. Reliable means of assessing this important aspect of crew behavior without simultaneously interfering with that behavior are difficult to develop. Unobtrusive measurement of crew situation awareness is particularly important in the conduct of full mission simulations where considerable effort and cost is expended to achieve a high degree of operational fidelity. An unobtrusive method of assessing situational awareness is described in this paper which employs a topical analysis of intra-crew communications. The communications were taken from videotapes of crew behavior prior to, during, and following an encounter with a microburst/windshear event. The simulation scenario re-created an actual encounter with an event during an approach into Denver Stapleton Airport. The analyses were conducted on twelve experienced airline crews with the objective of determining the effect on situation awareness of uplinking ground-based information of the crew during the approach. The topical analysis of crew communication was conducted on all references to weather or weather-related topics. The general weather topic was further divided into weather subtopical references such as surface winds, windshear, precipitation, etc., thereby allowing for an assessment of the relative frequency of subtopic reference during the scenario. Reliable differences were found between the relative frequency of subtopical references when comparing the communications of crews receiving a cockpit display of ground-based information to the communications of a control group. The findings support the utility of this method of assessing situation awareness and information value in full mission simulations. A limiting factor in the use of this measure is that crews vary in the amount of intra-crew communications that may take place due to individual differences and other factors associated with crew coordination. This factor must be taken into consideration when employing this measure.

WEATHER SUBTOPICS



ATIS information for Denver Approach

STAPLETON AIRPORT INFORMATION YANKEE. Two two zero zero zulu. Temperature 74, dewpoint 44, wind calm. Altimeter two nine nine six. Expect visual approach runway two six left, two six right, and two five. Caution for construction southeast corner of Bravo concourse. Microburst and low level windshear advisories are in effect. Convective SIGMET three six Charlie is in effect for Nebraska and Eastern Colorado for an area of severe thunderstorms. Contact Denver Flight Service for further details. VFR aircraft south and southeast, contact Denver Approach on 119.3, other VFR aircraft 126.9. All aircraft advise on initial contact you have information Yankee.

GROUP COCKPIT COMMUNICATION EVENTS WITH AND WITHOUT GROUND-BASED WEATHER DISPLAY FOR PERIOD FROM ATIS TO MICROBURST ALERT (N=12 AIRCREWS)