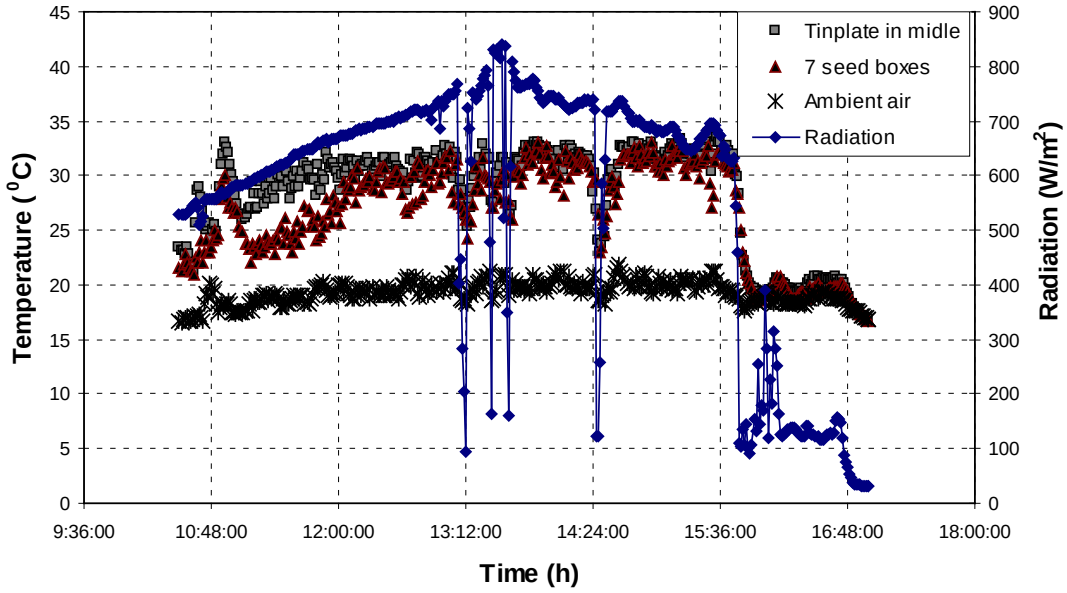

Fig.9 Ambient air, collectors(with tinplate, seed boxes absorbers) outlet temperatures and solar radiation changes (10:30 -17:00 o'clock).

Ambient air heating degree serves as the main effectiveness of collectors at the same size collectors with the same fan power. Comparing the absorbers with 7 seed boxes in line (the best variant of seed boxes [8]) and the absorber panel with slices at the same weather conditions we can see that the absorber panel with slices of cans gives little bit better results (temperature increases at the outlet of collector) than the variant of seed boxes Fig.10. The air inflow temperature equal with ambient air temperature and it changed from 17 ^0C to 25 ^0C during the experiment.

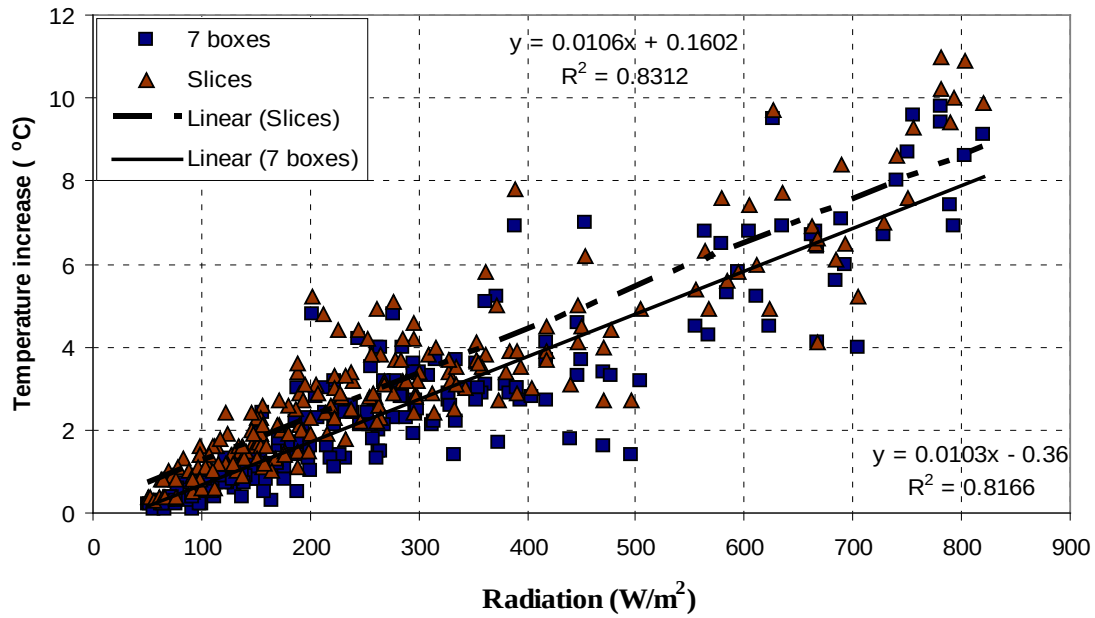

Fig.10 Air heating temperature difference with black coloured slices and 7 element seed boxes in line depending upon solar irradiance in sun following collector (11:00 -18:00 o'clock).

The experimental data show very good linear correlation between solar radiation and air-heating degree (correlation coefficient greater than 0.9).

The efficiency of solar air collectors is influenced both by the design and air circulation and by the properties of the material used for cover, absorber and insulation. The efficiency of this absorber material can be explained by the type of absorber which mix the air flow in thickness and width of the collector area. It is important because without air mix, air exchange at corners and near sides of the collector does not take place.

4. Conclusions

1. The theoretical expressions for air temperature which are changing over steel-thin plate absorber in FPC at 35cm and 60cm from inlet are obtained. These expressions show temperature distribution depending on the distance to the absorbent tin plate and radiation.

2. Using experimental data processing temperature distribution above and below the absorbent sheet according to the length of the collector and solar radiation was obtained.

3. Absorber black colored slices of beer cans can be used for air heating solar collectors. The experimental data show that the temperature difference in outlet of sun following collector reaches up to 9-11 degree with sun irradiance 1000 W/m^2 at different weather conditions.

4. Air solar collectors due to their physical and mechanical properties are suitable in Latvia for heating the air. At favorable weather conditions the heating degree of ambient air reaches more than 10 degrees at exit with the absorber length 1 m and air velocity v=0.9 m/s.

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