STUDY ON BEARING CAPACITY OF AIRPORT PAVEMENT DAMAGED DUE TO THE 2011 TOHOKU REGION PACIFIC COAST EARTHQUAKE

Correction of errors

p.66

(1) Normalized deflection

The shape of the deflection basin was examined. **Fig.11** shows a normalized deflection ND_x calculated as shown in equation (2).

$$ND_x = D_x / D_0 \qquad (2)$$

where ND_x is normalized deflection at x (mm) apart from the center of the loading plate; D_x (μm) is deflection measured at x (mm) apart from the center of the loading plate; D_0 (μm) is deflection measured at the center of the loading plate.

The normalized deflection of the slab with the void tended to be larger than that of the slab without the void. Furthermore, it was also observed that the normalized deflection of some slabs with the voids exceeded 1.0, which meant that D_x was larger than D_0. These phenomena indicated that FWD deflection in a distance from the loading plate of the slab with the void could be close to the deflection at the center of the loading plate because the slab was not supported by a base layer due to the void underneath the slab.

(2) Peak time difference of deflection

The deflection data in time series were examined. **Fig.12** shows an example of deflection data in time series. In this examination, we defined "peak time difference, Δt_x" as shown in equation (3) and **Fig.12**.

$$\Delta t_x = t_x - t_0 \qquad (3)$$

the slabs in column N are somewhat small in the apron; nevertheless, these slabs are very close to the settlement area.

Fig.16 shows the results. There may be a void underneath the slab of N7 since this slab is plotted in the group of the slab with the void. On the other hand, there may not be a void underneath the slab of N14 though the deflection at the center of this slab is 331 μm, which is one of the largest deflections among the slabs in column N.

As a result, it is possible that the void underneath the cement concrete slab is easily detected by using the normalized deflection and the peak time difference measured by using FWD.

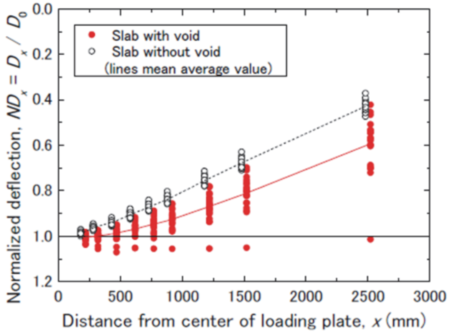
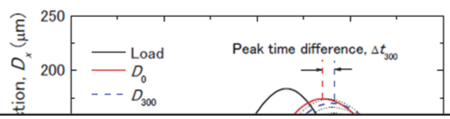


Fig.11 Normalized deflection.



331 → 314

STUDY ON BEARING CAPACITY OF AIRPORT PAVEMENT DAMAGED DUE TO THE 2011 TOHOKU REGION PACIFIC COAST EARTHQUAKE

Correction of errors

p.67

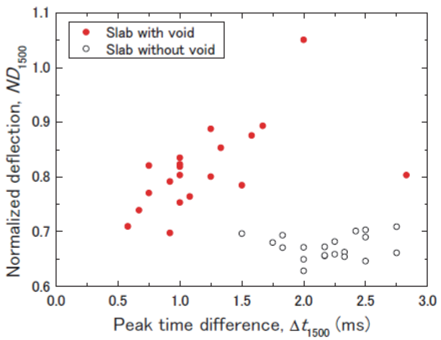


Fig.15 Relationship between normalized deflection and peak time difference at 1500 mm.

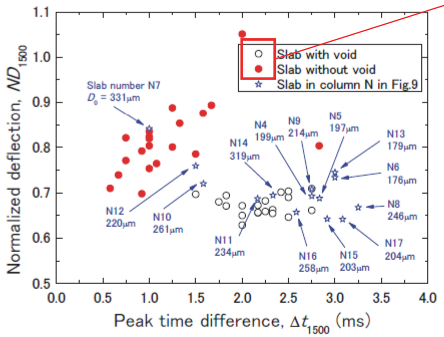
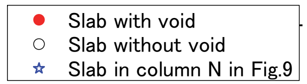


Fig.16 Results of slabs in column N shown in **Fig.9**.



6. CONCLUSION

(1) There were several cracks in the asphalt pavement and large settlement due to the earthquake. Cracks in Runway B and the taxiway were not derneath the cement concrete slabs.

(3) FWD deflection in a distance from loading plate of the slab with the void could be close to the deflection at the center of the loading plate because the slab with the void was not supported by a base layer due to the void underneath the slab. Thus, the normalized deflection of the slab with the void tended to be larger than that in the slab without the void.

(4) The peak time difference in the slab with the void tended to be smaller than that in the slab without the void. This indicated that not only the center of loading plate but also portions in a distance from the loading plate tended to deform at almost the same time as in the case of the slab with the void. It was possible that the void underneath the cement concrete slab was easily detected by using normalized deflection and the peak time difference measured by using FWD.

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