DATA USED IN 1994 PAPER

"Numerical simulation of nonlinear wave propagation over a bar"

Beji, S. and Battjes, J.A., Coastal Engineering 23, 1-16, 1994.

Experimental sampling time: 0.039312 second (**rate**: $\sim$ 25 Hz)

5000 data points (3.3 minutes of real time) for **SL** and **SH**. Non-breaking waves.

SL: **S**inusoidal **L**ow frequency or long waves. Period T=2.00 s, f=0.5 Hz.
SH: **S**inusoidal **H**igh frequency or short waves. Period T=1.25 s, f=0.8 Hz.

21000 data points (13.8 minutes of real time) for **JL** and **JH**. Non-breaking waves.

JL: **J**ONSWAP type random **L**ow frequency waves. Peak period T=2.00 s, f=0.5 Hz.
JH: **J**ONSWAP type random **H**igh frequency waves. Peak period T=1.25 s, f=0.8 Hz.

21000 data points (13.8 minutes of real time) for **JLS** and **JHS**. Spilling breakers.

JLS: **J**ONSWAP type random **L**ow frequency **S**pilling waves. Peak period T=2.00 s, f=0.5 Hz.
JHS: **J**ONSWAP type random **H**igh frequency **S**pilling waves. Peak period T=1.25 s, f=0.8 Hz.

Only spilling –mildly breaking– waves are considered as these data are mainly produced for use in numerical simulations.

Wave Gage Locations: In this setup the first wave gage is located 0.3 m before the toe of the upslope. It serves as the recorder of incident waves in numerical simulations. Note that there are total seven gages in these experiments used in the 1994 paper as compared to the eight gages used in the 1993 paper. The locations are the gages are also different. Wave gage locations as measured from the waveboard at x=0 m are

WG1: 5.7 m, **WG2: 10.5 m**, **WG3: 12.5 m**, **WG4: 13.5 m**,
WG5: 14.5 m, **WG6: 15.7 m**, **WG7: 17.3 m**.

Bathymetry: Bathymetry is exactly the same as given in the 1993 paper. In the experimental setup at x=28.95 m the depth becomes zero; however, for computational simulations it is recommended to set the depth to a constant value at some distance before x=28.95 m as waves numerically radiate better on a constant depth. For instance, at x=23.95 m from the waveboard the water depth is 0.2 m and from this point on the depth may be taken as 0.2 m constant.

Bathymetry as a part of FORTRAN program is given below.

```
if(x.ge.0.0.and.x.le.6.0) h=0.4
if(x.gt.6.0.and.x.le.12.0) h=0.4-0.05*(x-6.0)
if(x.gt.12.0.and.x.le.14.0) h=0.1
if(x.gt.14.0.and.x.le.17.0) h=0.1+0.1*(x-14.0)
if(x.gt.17.0.and.x.le.18.95) h=0.4
if(x.gt.18.95.and.x.le.28.95) h=0.4-0.04*(x-18.95)
```

All the recorded data are in meters. The FORTRAN program below reads them in binary from and writes in centimeters by multiplying by 100.

```
        open(30,file='sl',form='binary')
        open(40,file='sl.dat')
c
   do i=1,5000
   t=0.039312*float(i-1)
c
       read(30)s1,s2,s3,s4,s5,s6,s7
c
   write(40,10)t,100*s1,100*s2,100*s3,100*s4,100*s5,100*s6,100*s7
c
   enddo
 10 format(8(f10.5,2x))
c
stop; end
```

The original recorded files given in “Binary” folder are all in meters. The converted data files in text form in “Text” folder are all in centimeters. Time is in seconds. They are converted from the original records in binary form by using the above simple FORTRAN program. The FORTRAN program itself is also included in the “Binary” folder.