Manual for Package: sediment-transport
Revision 1:6M

Karl Kästner

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```

6.3 adaptation_length_flow

```
adaption length of the flow
```

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```
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```

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6.6 bed_load_einstein

```
bed load transport according to einstein jr.
```

6.7 bed_load_engelund_fredsoe

```
bed load transport according to engelund and fredsoe
```

6.8 bed_load_transport_mpm

```
bed load transport rate according to meyer-peter-mueller
```

6.9 bed_load_transport_rijn

```
bed load transport
method of van Rijn (1984)

function [Q_b q_b Phi_b] = bed_load_transport_rijn(C,d50,d90,U,d,b)

d50 [mm] (converted to m)
d90 [mm] (converted to m)

d : depth
b : width
```

6.10 bed_load_transport_wu

```
bed load transport according to Wu
```

6.11 bedform_dimension_rijn

```
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cf. rijn 1984 iii
```

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```
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```

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```
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```

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```
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```

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```
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```

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```
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```

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```
critical shear Stress
```

6.22 critical_shear_stress_ratio

```
critical shields parameter
aka critical shear stress ratio
aka shields curve
```

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```

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```
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```

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6.31 grain_roughness_rijn

```
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```

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6.49 sediment_transport_waves

```
sediment transport by waves
```

6.50 settling_velocity

```
Settling velocity
5.23d in julien-2010
settling velocity in water
settling velocity according to cheng
stokes settling velocity
d : [mm] diameter of sediment particle
ws : [m/s] settling velocity
          signed ws < 0 : falling
(Note: was R, radius in m)

valid for small particles
```

6.51 settling_velocity_to_diameter

```
invert settling velocity to diameter
```

6.52 shields_number

```
normalized shear stress, shear stress ratio
```

6.53 skin_2_total_friction_eh

```
skin friction to total friction conversion according to engelund
    and hansen
function [theta,C] = skin_2_total_friction_eh(theta_t,Ct)
```

6.54 suspended_grain_size

```
suspended grain size distribution based on bed material grain size
    distribution

assumes that probability of suspension is inverse proportional to
    grain diameter
as in Engelund-Hansen transport relation
- no hiding effects considered
- no threshold for large grains applied
- no flocking considered
note: actual distribution varies with the depth

d     : [1xnd] grain size in arbitrary units (on linear, not on log
    scale)
h_bed : [nsxnd] fractions of sediment of size d
```

6.55 suspended_grain_size_non_linear

```
suspended grain size distribution based on bed material grain size
    distribution

assumes that probability of suspension is inverse proportional to
    grain diameter
as in Engelund-Hansen transport relation
- no hiding effects considered
- no threshold for large grains applied
- no flocking considered
note: actual distribution varies with the depth

d     : [1xnd] grain size in arbitrary units (on linear, not on log
    scale)
h_bed : [nsxnd] fractions of sediment of size d
```

6.56 suspended_grain_size_rijn

```
grain size of the suspended sediment according to van rijn,
    empirical
```

6.57 suspended_transport_mclean

```
vertical profile of the suspended sediment according to McLean
u := us/kappa*log(z/z0);
I = 1/(int_a^h c dz int_a^h u dz) int_a^h c u dz
```

6.58 suspended_transport_rijn

```
suspended load transport according to van Rijn
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```

6.60 suspension_parameter_rijn

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8 sediment-transport

```
analysis and prediction of fluvial sediment transport and
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```

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```
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```

8.3 total_roughness_rijn

```
total roughness according to van rijn
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8.5 total_transport_bagnold

```
total sediment transport accoding to bagnold
```

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```
total sediment transport according to engelund hansen
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8.7 total_transport_engelund_hansen

```
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```
total sediment transport according to van rijn
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8.9 total_transport_wu

```
total sediment transport according to wu 2000b
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8.10 total_transport_yang

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```
transport stage according to McLean
```

8.12 transport_stage_rijn

```
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```
vertical profile of the suspended sediment according to McLean
```