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Kamphuis CERC

CERC

Kamphuis

CERC K

Kamphuis CERC

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Kamphuis CERC

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Van der Meer

Van der Meer

CERC

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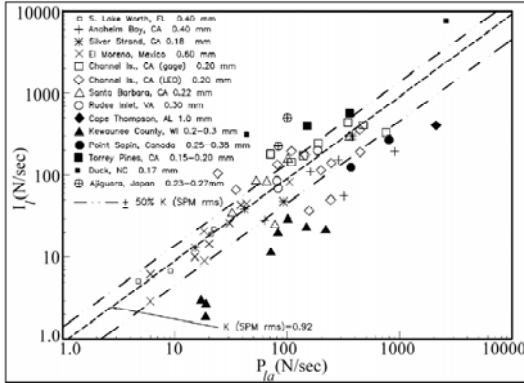
Kamphuis

$$K \quad ( ) \quad [ ]$$

$$Q_{CERC} = K \left[ \frac{\rho \sqrt{g}}{16k^{1/2}(\rho_s - \rho)(1-n)} \right] \times H_b^{5/2} \sin 2\alpha_b \quad ( )$$

CERC

$$Q_{Kamphuis} = 6.4 \times 10^4 \times H_{sb}^2 T_p^{1.5} m_b^{0.75} D_{50}^{-0.25} \sin^{0.6} 2\alpha_b \quad ( )$$



$$P_l \quad I_l$$

$$\frac{\rho_s}{g} \quad \frac{\rho}{n} \quad k \left( l \quad m/s^r \right) \quad H_b \quad \left( \quad \right) \quad d_{\Delta} \quad \alpha_b \quad T_p \quad m_b$$

K / CEM CERC [ ]

$$C_o = 1.56T \quad ( )$$

$$C_{go} = 0.5C_o \quad ( )$$

$$C_{go} \quad C_o$$

$$H_b = H_o (C_{go} \cos \alpha_o)^{2/5} \times \left[ \frac{g}{k} - \frac{H_b g^2 \sin^2(\alpha_o)}{k^2 C_o} \right]^{-1/5} \quad ( )$$

$$C_b = \sqrt{g \frac{H_b}{k}} \quad ( )$$

Kamphuis CERC

$$\alpha_b = \sin^{-1} \left( C_b \sin \frac{\alpha_o}{C_o} \right) \quad ( )$$

$$d_b = \frac{H_b}{k} \quad ( )$$

$$E_b = \frac{\rho g H_b^2}{8} \quad ( )$$

$$p_l = (E C_g)_b \sin \alpha_b \cos \alpha_b \quad ( )$$

CERC

$$I_l = p_l \times K \quad ( )$$

K

Wang and Kraus (1999)

$\alpha_o$   $H_o$

$C_b$

$E_b$

$d_b$

India

$I_l$

$p_l$

K

CERC

Kamphuis (1986) .[ ]

CERC

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Kumar

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CERC

Wang et al. (1998)

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$$K = \cdot / \cdot \lambda \quad (H_{rms})$$

SPM

$$K = \cdot / \cdot \lambda$$

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Wang et al. (1998)

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CERC

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SPM (USACE, 1984)

Komar and Inman (1970)

$$K = \cdot / \cdot \lambda$$

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CERC

Schoonees and Theron (1993,1996)

/ K

Komar and Inman (1970)

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Kamphuis (1991)

Schoonees and Theron (1993,1996)

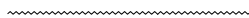
Kamphuis (1991)

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ISWM

:

[ ]  $d_{\Delta} = \dots m, m_b = \dots \Delta$  :

[ ]  $d_{\Delta} = \dots m, m_b = \dots$  :

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[ ]  $d_{\Delta} = \dots m, m_b = \dots$  :

CERC

Kamphuis

$\Delta \cdot kg/m^x$

$1.2 \Delta kg/m^x$

$$Q_{CERC}(m^3/yr) = \frac{I_l}{g(\rho_s - \rho)(1-n)} \times \dots ( )$$

$f' \times 24 \times 365 \times 3600$

(ISWM)

Mike 21-SW

[ ]

$$Q_{Kamphuis}(m^3/yr) = 6.4 \times 10^4 \times H_b^2 \times \dots ( )$$

$T_p^{1.5} \times m_b^{0.75} \times d_{50}^{-0.25} \times \sin^{0.6}(2\alpha_b) \times f'$

$f'$

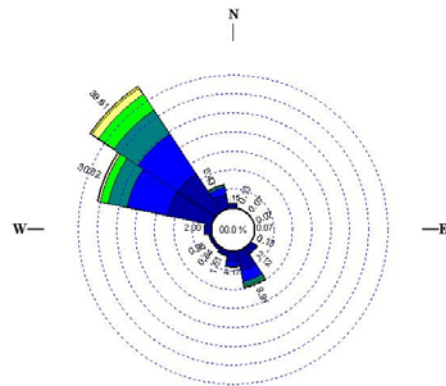
ECMWF

(Hindcast)

( ) [ ]

ISWM

Rose Diagram of Persian Gulf (27-32)



Calms included.  
 Rings drawn at 5% intervals. | S Sign. Wave Height (meter)  
 0 0.5 1.0 1.5 2.0 2.5 3.0 3.5

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GENESIS (GENERALized model  
 for SIMulating Shoreline change)  
 Genesis [ ]

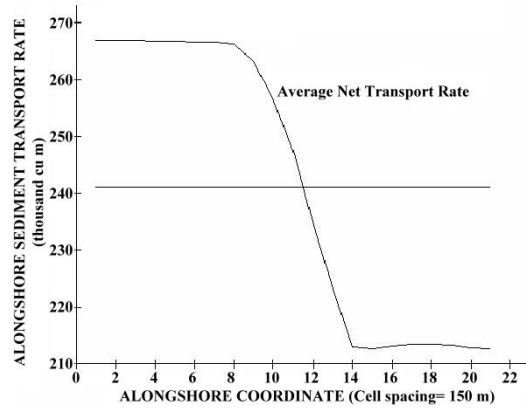
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Port	Q <sub>CERC</sub> (m <sup>3</sup> /yr)	Q <sub>Kamphuis</sub> (m <sup>3</sup> /yr)
Lavar	200098	44817
Parak	45542	7596
Imam Hassan	111052	4107
Javadol a'eme	43872	15210
Zar Abad	212166	149644
Pozm	616171	376330
Ramin	517067	276849



Genesis

Port	Q <sub>Measured</sub> (m <sup>3</sup> /yr)	$\frac{Q_{CERC}}{Q_{Measured}}$	$\frac{Q_{Kamphuis}}{Q_{Measured}}$
Lavar	100000	2.00	0.45
Parak	10000	3.95	0.76
Imam Hassan	19000	5.48	0.22
Javadol a'eme	24151	1.77	0.63
Zar Abad	145000	1.46	1.03
Pozm	30000	20.54	12.54
Ramin	68000	7.60	4.07

RMS

$$\sigma_{rms} = \left[ \frac{\sum_{i=1}^N [\log(q_c) - \log(q_m)]^2}{N-1} \right]^{1/2} \quad (\sigma_{rms})$$

$q_c$                        $N$   
 $q_m$   
 RMS

( )                      ( )

CERC                      RMS

Kamphuis

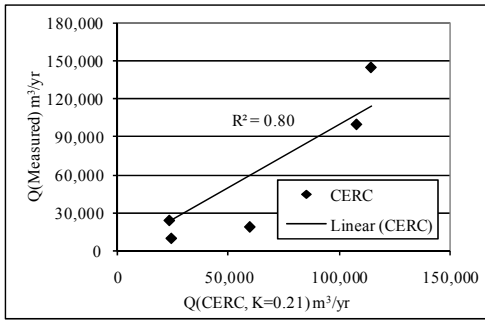
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CERC

CERC



$K = \cdot / \tau \lambda$  CERC :

Kamphuis

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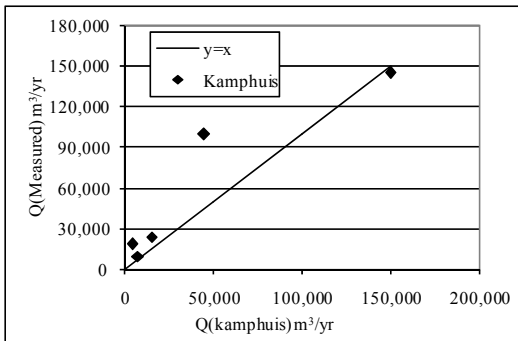
Kamphuis

Kamphuis (1991)

CERC

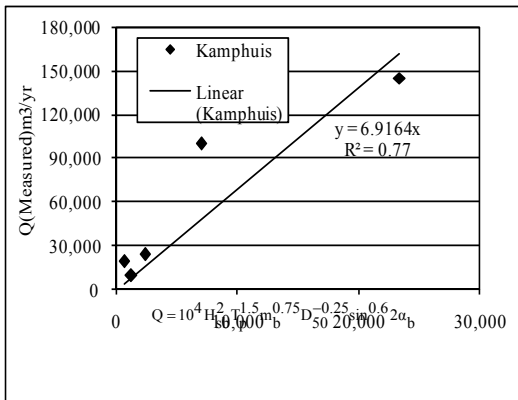
CERC

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Kamphuis

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Kamphuis

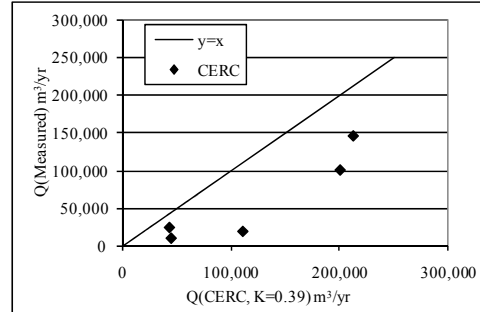
$K = \cdot / \tau \lambda$  CERC

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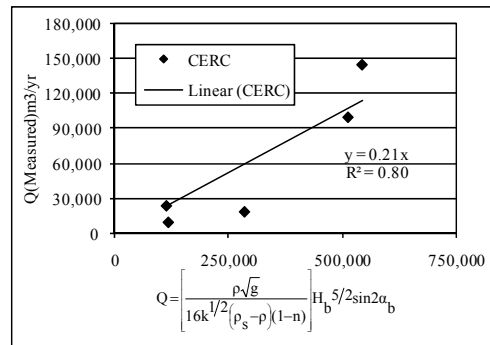
$K = \cdot / \tau \lambda$

$K = \cdot / \tau \lambda$

CEM



$K = \cdot / \tau \lambda$  CERC :



CERC K :

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(  $K = \cdot / \tau \lambda$  )

$R^2 = /$

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$$ARE(\%) = \frac{1}{N} \sum_{i=1}^N \frac{|(q_c)_i - (q_m)_i|}{(q_m)_i} \times 100 \quad ( )$$

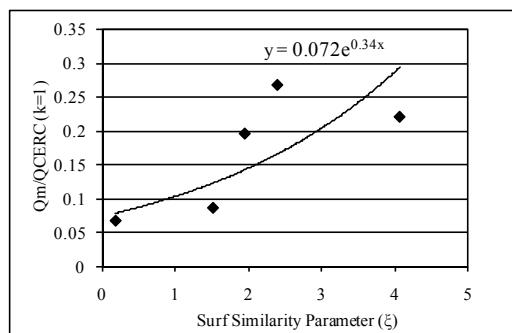
(ARE)

رسوب پراکنده بوده و تفاوت قابل ملاحظه‌ای را نشان می‌دهند. بنابراین حداقل بر مبنای این داده‌های محدود نمی‌توان در سواحل جنوبی کشور ارتباطی مابین قطر ذرات رسوب و ضریب  $K$  رابطه CERC ارائه کرد.

$$\xi_b = \frac{m_b}{\frac{H_b}{L_o}} \quad ( )$$

CERC  $K$  ( )

$$K = 0.072e^{0.34\xi} \quad \text{CERC}$$



$K$  :

Kamphuis(1991)

CERC

$$K = 0.21$$

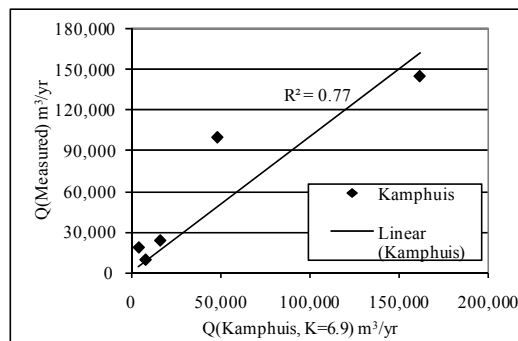
CERC

( $K = 0.39$ ) CEM

/ Kamphuis

$$R^2 = / \quad \text{Kamphuis (1991)} \quad ( )$$

Kamphuis



/ Kamphuis :

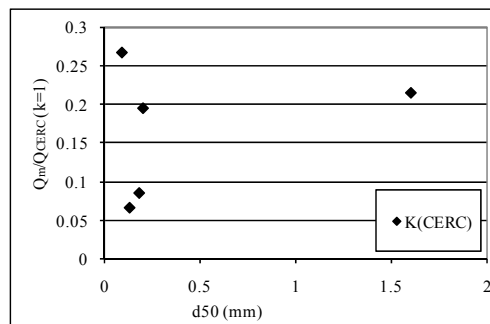
$K$   
( $\xi_b$ )

$K$

CERC

CEM (2006) .

CERC



$K$  :

( )

CERC

علی‌رغم مشابه بودن چهار نمونه رسوبی بنادر مورد بررسی در محدوده دانه بندی ۰/۲ میلی‌متر، داده‌های نرخ انتقال



Kamphuis

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CERC

 $K$  $K$ 

$$K = 0.072e^{0.34\xi}$$

CERC

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- 1 - Groin
  - 2 - Tracer
  - 3 - Shoaling
  - 4 - Refraction
  - 5 - Monitoring
  - 6 - Littoral Drift
  - 7 - Supply Limited
  - 8 -Average Relative Error (ARE)
  - 9 - Surf Similarity Parameter
  - 10 - Steepness
-