



Aalborg Universitet

AALBORG UNIVERSITY
DENMARK

Full Erratum for “Experimental Study of the Development of Scour and Backfilling”

Hartvig, Peres Akrawi; Thomsen, Jess McCann; Frigaard, Peter; Andersen, Thomas Lykke

Publication date:
2011

Document Version
Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

Citation for published version (APA):

Hartvig, P. A., Thomsen, J. M., Frigaard, P., & Andersen, T. L. (2011). Full Erratum for “Experimental Study of the Development of Scour and Backfilling”. Department of Civil Engineering, Aalborg University. DCE Technical Memorandum No. 12

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal -

Take down policy

If you believe that this document breaches copyright please contact us at vbn@aub.aau.dk providing details, and we will remove access to the work immediately and investigate your claim.

Full Erratum for “Experimental Study of the Development of Scour and Backfilling”

**Peres Akrawi Hartvig
Jess McCann Thomsen
Peter Frigaard
Thomas Lykke Andersen**

Aalborg University
Department of Civil Engineering
Division of Water & Soil

DCE Technical Memorandum No. 12

Full Erratum for “Experimental Study of the Development of Scour and Backfilling”

by

Peres Akrawi Hartvig
Jess McCann Thomsen
Peter Frigaard
Thomas Lykke Andersen

July 2011

© Aalborg University

Scientific Publications at the Department of Civil Engineering

Technical Reports are published for timely dissemination of research results and scientific work carried out at the Department of Civil Engineering (DCE) at Aalborg University. This medium allows publication of more detailed explanations and results than typically allowed in scientific journals.

Technical Memoranda are produced to enable the preliminary dissemination of scientific work by the personnel of the DCE where such release is deemed to be appropriate. Documents of this kind may be incomplete or temporary versions of papers—or part of continuing work. This should be kept in mind when references are given to publications of this kind.

Contract Reports are produced to report scientific work carried out under contract. Publications of this kind contain confidential matter and are reserved for the sponsors and the DCE. Therefore, Contract Reports are generally not available for public circulation.

Lecture Notes contain material produced by the lecturers at the DCE for educational purposes. This may be scientific notes, lecture books, example problems or manuals for laboratory work, or computer programs developed at the DCE.

Theses are monographs or collections of papers published to report the scientific work carried out at the DCE to obtain a degree as either PhD or Doctor of Technology. The thesis is publicly available after the defence of the degree.

Latest News is published to enable rapid communication of information about scientific work carried out at the DCE. This includes the status of research projects, developments in the laboratories, information about collaborative work and recent research results.

Published 2011 by
Aalborg University
Department of Civil Engineering
Sohngaardsholmsvej 57,
DK-9000 Aalborg, Denmark

Printed in Aalborg at Aalborg University

ISSN 1901-7278
DCE Technical Memorandum No. 12

Full Erratum for “Experimental Study of the Development of Scour and Backfilling”

Peres Akrawi Hartvig^{1,2}, Jess McCann Thomsen³, Peter Frigaard¹, Thomas Lykke Andersen¹

This erratum concerns the paper of Hartvig et al. [2010]. Through recent work with the data from the paper, two general errors have been discovered, namely:

- The scour volume has inadvertently been over-estimated in the paper. This was because V_{pile} was inadvertently *added* to the void volume rather than *subtracted* as it should have been in the procedure described on p. 170-172. This error affects the reported values for the scour volume and scour shape factor, the fitting coefficients and some figures.
- The illustration of the scour shape factor was somewhat mistaken since it was realized that scour holes will not be *perfectly* geometrically similar during scouring since the pile dimension will remain unchanged – and therefore the hole is not scaled completely uniformly in all dimensions.

The above errors result in the following eleven corrections:

1) On p. 171-172, Tables 2-3 respectively, the existing *values* for the scour volume V and the scour shape factor ψ should be changed to:

Profile no.	V	ψ
A.01	0	-
A.02	0.0017	11
A.03	0.0013	36
A.04	0.0011	91
A.05	0.0009	162
A.06	0.0035	8
A.07	0.0058	8
A.08	0.0075	8
A.09	0.0069	11
A.10	0.0064	16
A.11	0.0053	22
A.12	0.0085	8
A.13	0.0118	7
A.14	0.013	8
A.15	0.012	9
A.16	0.011	13
A.17	0.010	16
A.18	0.019	7
A.19	0.02	8-9
A.20	0.02	7-8

¹ Aalborg University, Department of Civil Engineering, Sohngaardsholmsvej 57, 9000 Aalborg, Denmark

² E-mail: pah@civil.aau.dk

³ Grontmij | Carl Bro A/S, Dusager 12, 8200 Århus N, Denmark

A.21	0.02	9-10
A.22	0.02	11-13
A.23	0.02	14-16
A.24	0.03	10-11

and

Profile no.	V	ψ
B.01	0	-
B.02	0.0002	48
B.03	0.0006	23
B.04	0.0010	17
B.05	0.0016	14
B.06	0.0021	12
B.07	0.0022	11
B.08	0.0022	9
B.09	0.0031	9
B.10	0.0033	8
B.11	0.0083	8
B.12	0.0074	7
B.13	0.0076	7
B.14	0.0081	7
B.15	0.0100	8
B.16	0.0099	7
B.17	0.0110	8
B.18	0.0102	7
B.19	0.0139	8

2) Figures 6, 11, 12, 13, 18, 19, 20 and 21 should be replaced with the present ones.

3) In Figs 8 and 15, the values for V should be replaced by the corresponding corrected values from the first of the above tables.

4) On p. 182, fifth line below section 6.1.1, "... a minimum value, equal to 8-9 in the present tests ..." should be changed to "... a minimum value, equal to 7-8 in the present tests ..."

5) On p. 182, "Once the scour shape factor has converged, the rate of scour depth is only affected by the rate of scour volume which can be deduced from (16) and can be seen in Fig. 12." should be changed to "As the scour shape factor approaches the minimum limit, the rate of scour depth will be governed by the rate of scour volume which can be deduced from (16) and can be seen in Fig 12."

6) On p. 184, Eq. (28), the values in the equation should be changed to:

$$\left. \begin{array}{l} V_{0,A.01-02}/D^3 = 0 \\ V_{0,A.05-08}/D^3 = 0.4 \\ V_{0,A.11-14}/D^3 = 5.8 \end{array} \right\} V_{\infty,A}/D^3 = 13.7 \pm 0.7, \quad t_{V,A} = 9.5 \text{min} \pm 1.2 \text{min}, \quad t_{V,A}^* = 0.42 \pm 0.05, \quad n = 10$$

$$V_{0,B.01-07}/D^3 = 0, \quad V_{\infty,B.01-07}/D^3 = 2.3 \pm 0.1, \quad t_{V,B} = 8.9 \text{min} \pm 0.8 \text{min}, \quad t_{V,B}^* = 0.21 \pm 0.03, \quad n = 7$$

7) On p. 184, just below Eq. (28), “... weaker current, but this discrepancy is within the confidence range of the parameters.” should be changed to “... weaker current, and this trend exceeds the confidence range of t_V^* .”

8) On p. 189, Eq. (35), the values in the equation should be changed to:

$$\left. \begin{array}{l} \psi_{0,A.02-05} = 11.2, \quad V_{0,A.02-05}/D^3 = 1.7, \quad w_{A.02-05} = 0.01 \\ \psi_{0,A.08-11} = 7.8, \quad V_{0,A.08-11}/D^3 = 7.5, \quad w_{A.08-11} = 1.8 \\ \psi_{0,A.14-17} = 7.9, \quad V_{0,A.14-17}/D^3 = 12.9, \quad w_{A.14-17} = 71 \end{array} \right\} c_1 = 250 \pm 81, \quad c_2 = 1.9 \pm 0.1, \quad n = 12$$

9) On p. 190, Eq. (36), the values in the equation should be changed to:

$$\left. \begin{array}{l} V_{0,A.02-05}/D^3 = 1.5 \\ V_{0,A.08-11}/D^3 = 7.3 \\ V_{0,A.14-17}/D^3 = 12.9 \end{array} \right\} V_{\infty}/D^3 = 0.1 [0;1.3], \quad t_V = 113 \text{min} \pm 18 \text{min}, \quad t_V^* = 5.0 \pm 0.8, \quad n = 12$$

10) On p. 190, just below eq. (36), “Roughly speaking, the normalized time scale is $t_V^* \approx 10^{-1}$ in the current-scoured tests and $t_V^* \approx 10^0 - 10^1$ in the wave-backfilled tests.” should be changed to “Roughly speaking, the normalized time scale is $t_V^* \approx 10^{-1}$ in the current-scoured tests and $t_V^* \approx 10^0$ in the wave-backfilled tests.”

11) On p. 191, just below eq. (38), “... that wave-current-backfilling in series E is about three times slower than current-scour in series A-B and about four times faster than the wave-backfilling in series A.” should be changed to “... that wave-current-backfilling in series E is about three times slower than current-scour in series A-B and about five times faster than the wave-backfilling in series A.”

References

Hartvig, P.A., Thomsen, J.M., Frigaard, P. & Andersen, T.L., 2010. Experimental study of the development of scour & backfilling. *Coastal Eng. J.*,. pp.157-94.

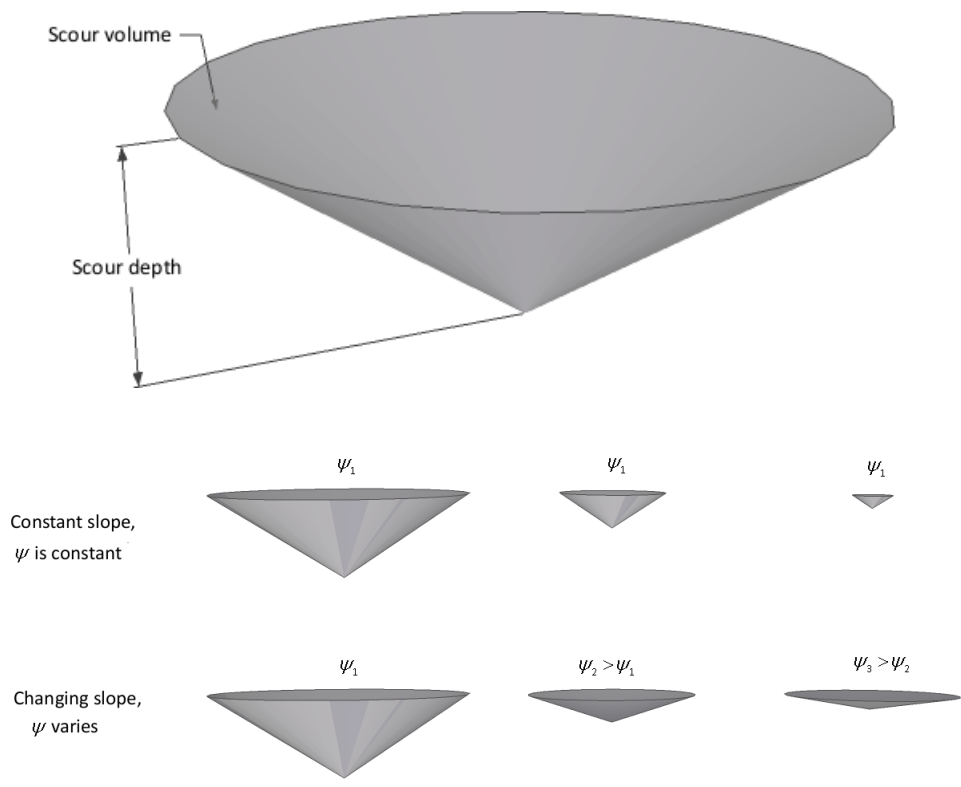


Figure 6.

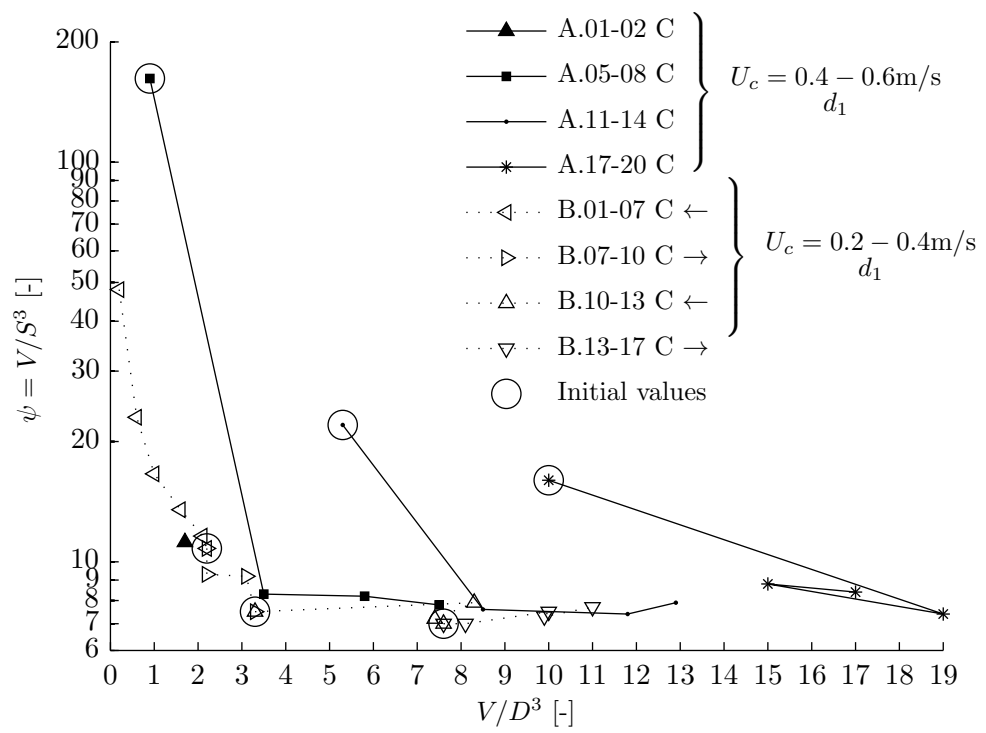


Figure 11.

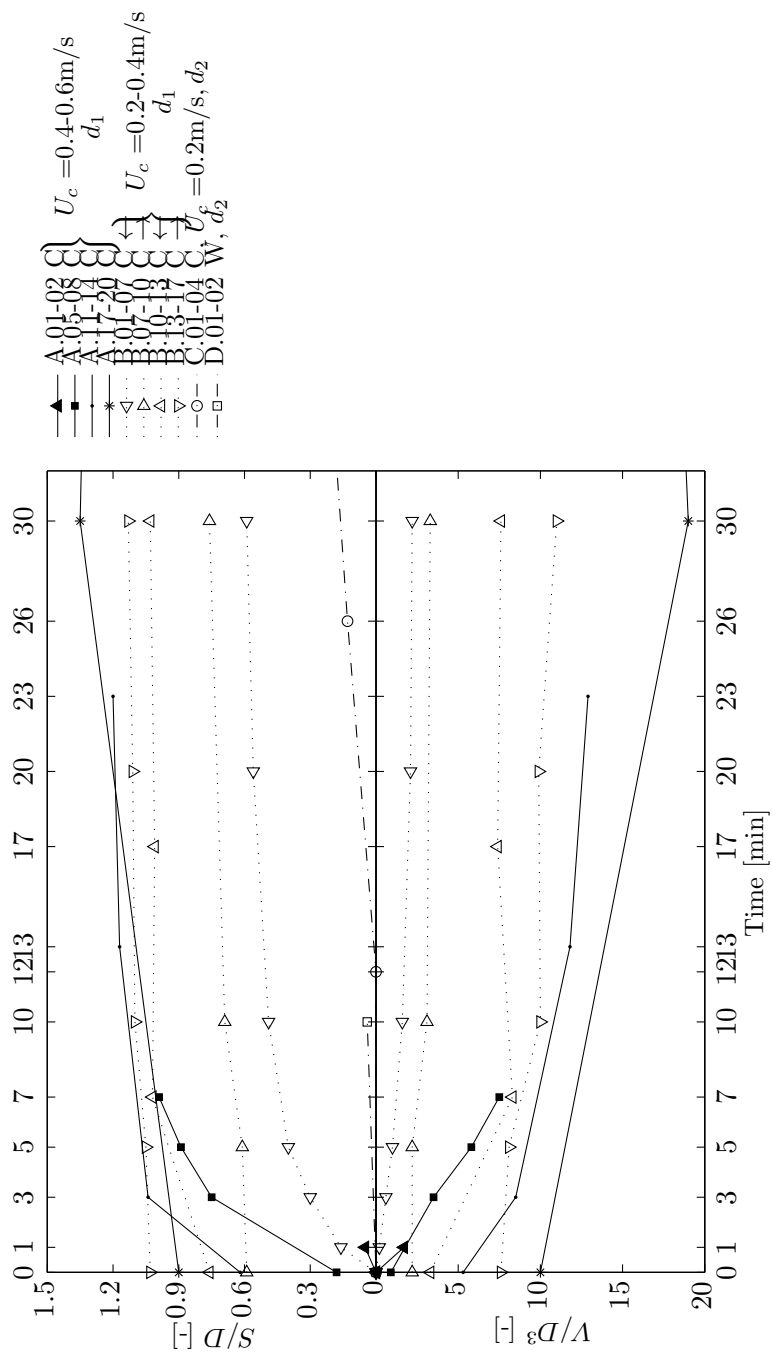


Figure 12.

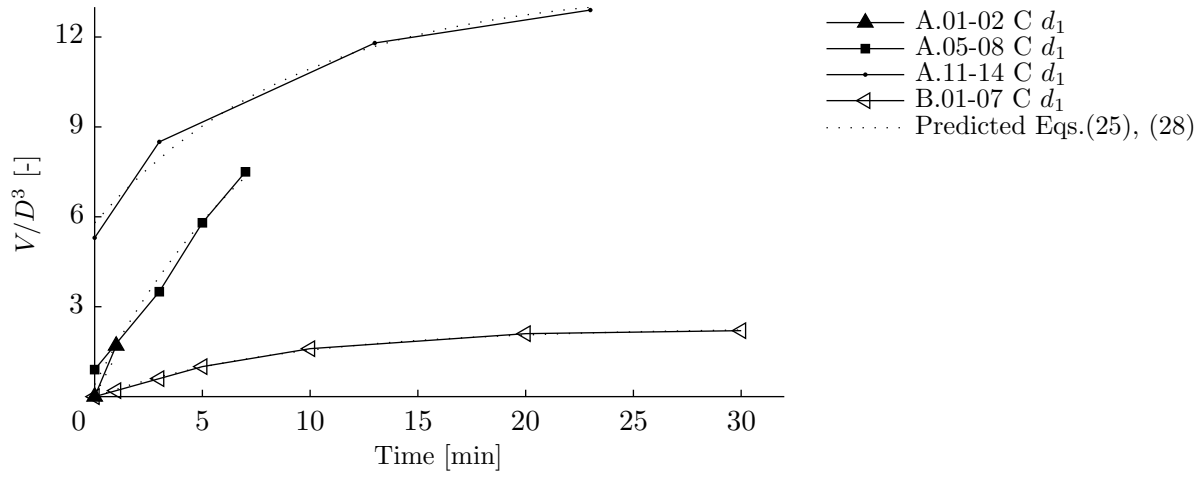


Figure 13.

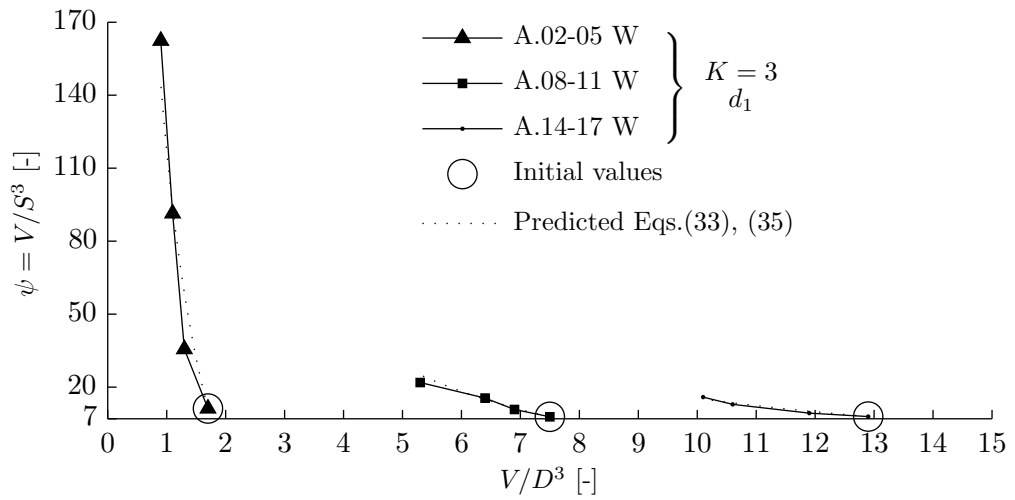


Figure 18.

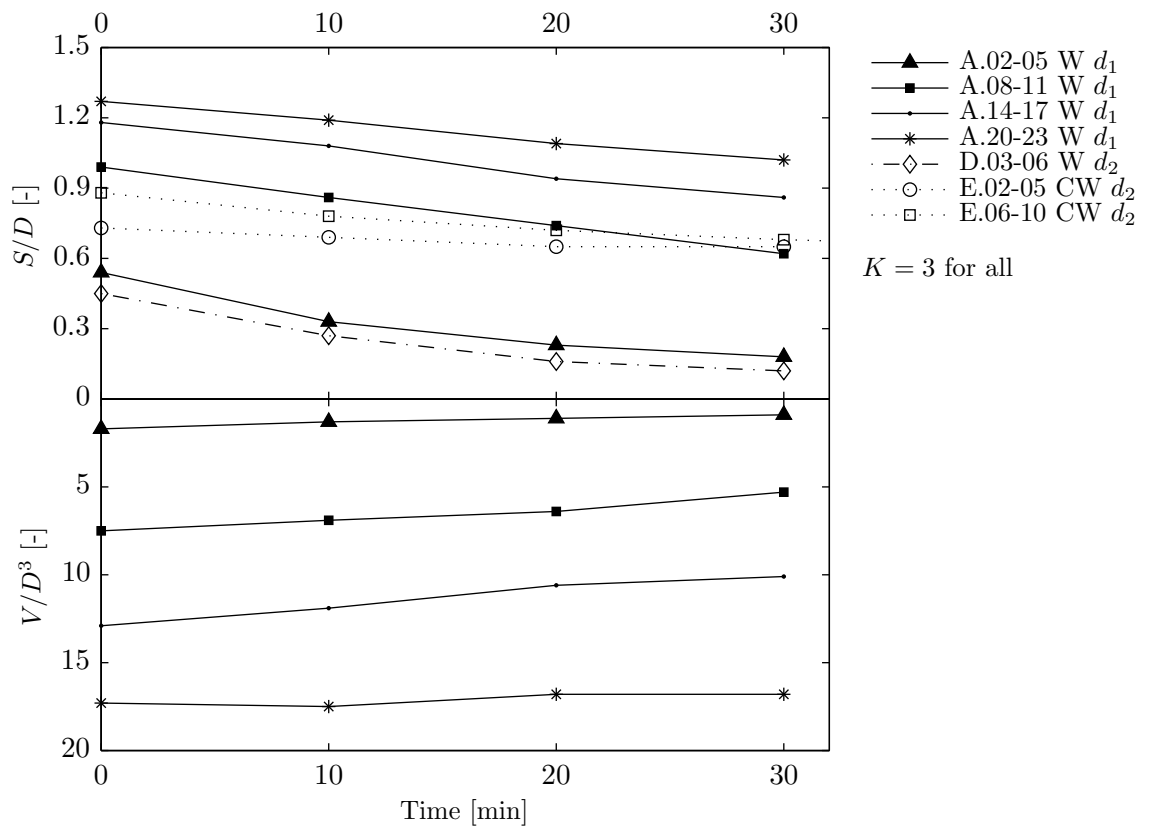


Figure 19.

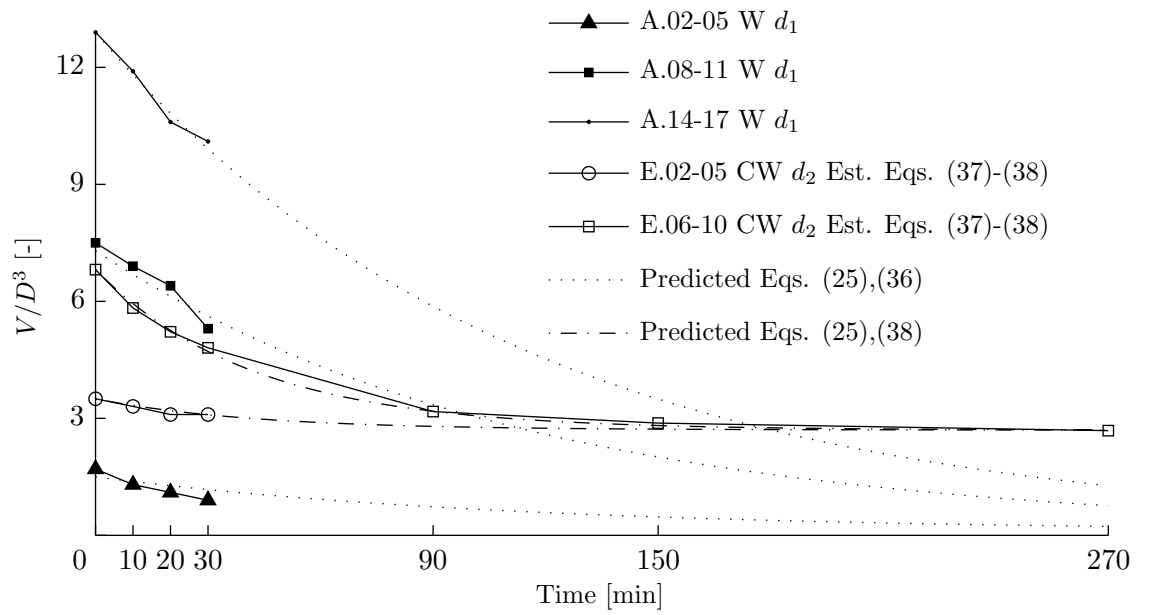


Figure 20.

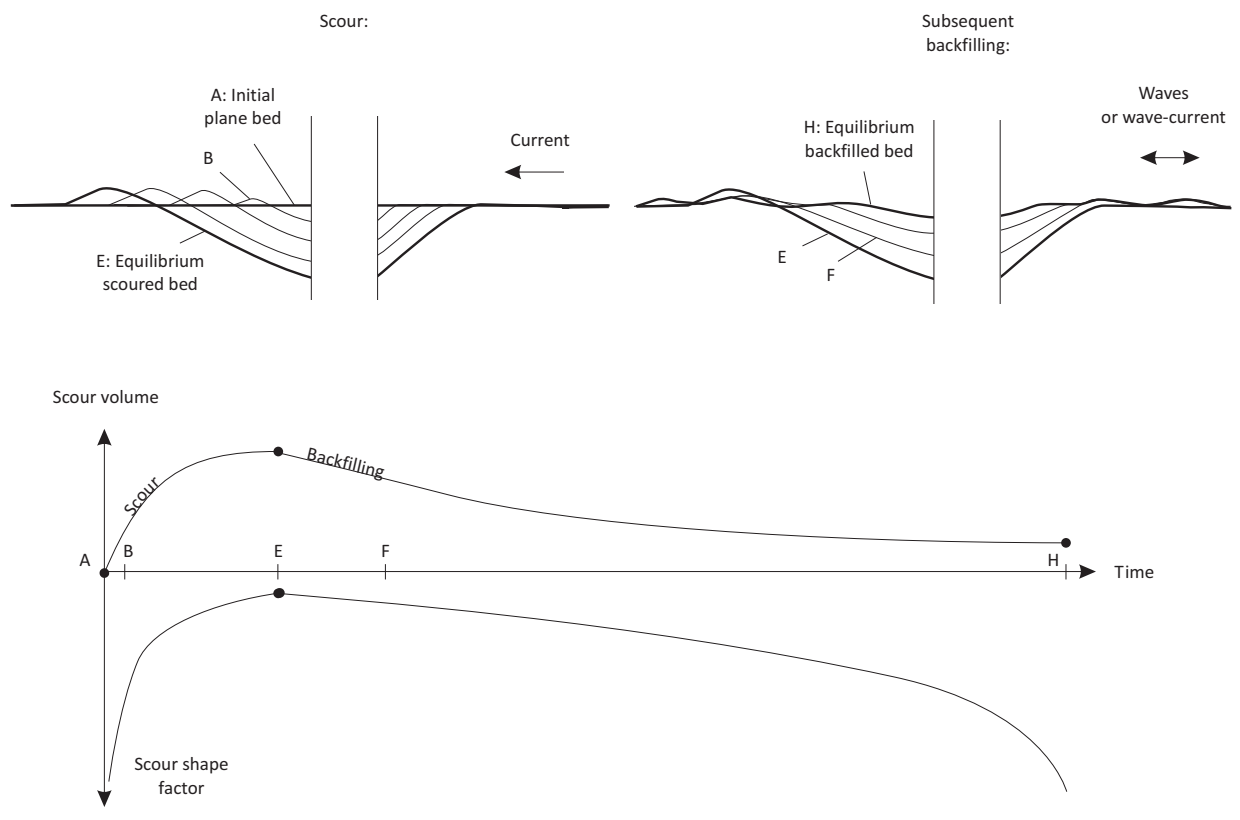


Figure 21.

