

沉降变形曲线的机助绘制(二)

(PC-1500A+CE-158+CE-515P)

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265: FOR I=CTO 1STEP -1; LPRIN 475: LPRINT CHR$ &1B,"b"; LPRIN
    T "M";B(I),",",Z(I);LPRINT  NT "M350,0";LPRINT CHR$
    "P.";NEXT I;LPRINT "H";RET  &1B,"?B"
URN
270: GOSUB 455;LPRINT "H";RETU  480: LPRINT CHR$ &0F;LPRINT
    RN                                "P";;LPRINT "! d&";CHR$ &
295: LPRINT CHR$ &1B,"2"          7B,"7fABHDF1! d";LPRINT CH
300: LPRINT "M300,95";LPRINT CH  R$ &0E
    R$ &0F;LPRINT "P";;LPRIN  485: LPRINT "M350,-5";LPRINT "D
    T "! 751LsD$ 8";CHR$ &7D;"%  595,-5";LPRINT "M350,-10";
    ";CHR$ &7D;"HN";CHR$ &22    LPRINT "D595,-10";LPRINT
    ;CHR$ &2C;                    CHR$ &1B,"?A";LPRINT "M0,
305: LPRINT "5k";CHR$ &25;CHR  -100"
    $ &7D;CHR$ &27;"M! >C>77!  487: LPRINT "A";RETURN
    %51Ls! *ABHD! 8";LPRINT C  490: FOR I=1TO M;R=X-T(I)
    HR$ &0E;LPRINT "H";RETU  492: IF R<=0LET X1=T(I-1); Y1=
    RN                                H(I-1);X2=T(I); Y2=H(I); GO
400: LPRINT "M";W,",";WW+40      TO 498
410: LPRINT "D";W,",";WW;,",";  495: NEXT I
    +5,",";WW+10;,",";W-5,",";  498: Y=(Y2-Y1)*X/(X2-X1)+(Y1
    WW+10;,",";W;,",";WW        *X2-X1*Y2)/(X2-X1);RETU
420: LPRINT "M";W+AA,",";WW+  RN
    25;LPRINT "P";Q$;
430: RETURN
450: LPRINT "M";T(M)+8,",";H(M  500: DIM P(2,50),TT(50),A(50),C(50
    )-5;LPRINT "P";D$(L)        ),D(2,50),Q(50),R(2,50),V(2,50
455: LPRINT CHR$ &1B;CHR$ (&    ),P5(2,52),Q5(2,50)
    30+OO);FOR I=MT0 1STEP      502: INPUT "N=?";N;DIM D$(N),
    -1;LPRINT "M";T(I)-1,",";H  T(60),H(60);AX=0;TX=0
    (I)-1;LPRINT "P.";NEXT I,R  505: FOR L=1TO N
510: READ "D$(L),M,T(1),H(1);TI  510: READ "D$(L),M,T(1),H(1);TI
    =INT(T(1));R7=INT((T(1)-    =INT(T(1));R7=INT((T(1)-
    TI)*100)

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511: R5 = (10000 * T(1) - 10000 * T1 - R7
      * 100) / 30; T(1) = 0
515: FOR J = 2 TO M; READ T(J), H(J)
      ; TJ = T(J); GOSUB 640; T(J) = T
      J; IF AX - ABS(H(J)) <= 0 LET A
      X = ABS (H(J))
517: IF TX - T(J) <= 0 LET TX = T (J)
518: NEXT J
520: NEXT L; DX = INT (TX/9) + 1; D
      Y = 3 * DX; RETURN
550: FOR I = 1 TO M; P(1, I) = T(I); P(
      2, I) = H(I); NEXT I
554: M1 = M - 1; FOR I = 1 TO M1; TT(I
      ) = SQR ((P(1, I + 1) - P(1, I)) ^ 2 +
      (P(2, I + 1) - P(2, I)) ^ 2); NEXT I
556: FOR I = 2 TO M1; A(I) = TT(I) / (T
      T(I - 1) + TT(I)); C(I) = 1 - A(I)
557: FOR J = 1 TO 2
558: D(J, I) = 3 * A(I) * (P(J, I) - P(J, I -
      1)) / TT(I - 1) + 3 * C(I) * (P(J, I +
      1) - P(J, I)) / TT(I)
560: NEXT J; NEXT I
562: Q(1) = 1; FOR J = 1 TO 2; R(J, 1)
      = 2 * (P(J, 2) - P(J, 1)) / TT(1); NE
      XT J
564: FOR I = 2 TO M1; W9 = 2 - A(I) *
      Q(I - 1); Q(I) = C(I) / W9
566: FOR J = 1 TO 2; R(J, I) = (D(J, I) -
      A(I) * R(J, I - 1)) / W9
568: NEXT J; NEXT I
570: FOR J = 1 TO 2; V(J, M) = (2 * (P(J
      , M) - P(J, M1)) / TT(M1) - R(J, M1
      )) / (1 - Q(M1)); NEXT J
572: FOR II = 1 TO M1; I = M - II
574: FOR J = 1 TO 2; V(J, I) = R(J, I) -
      Q(I) * V(J, I + 1); NEXT J; NEXT
      II
575: LPRINT CHR $ & 1B; CHR $ (&
      30 + O)
576: LPRINT CHR $ & 1B; "b"; LPRIN
      T "M"; P(1, 1); ", "; P(2, 1)
578: W9 = 1 / (5 + 1); FOR I = 1 TO M1;
      U = W9; LPRINT "D"; P(1, I); ", "
      ; P(2, I)
580: FOR J = 1 TO 5; F1 = 1 - 3 * U * U +
      2 * U * U * U; F2 = 3 * U * U - 2 * U
      * U * U; G1 = U - 2 * U * U + U * U
      * U
582: G2 = - U * U + U * U * U
584: X = P(1, I) * F1 + P(1, I + 1) * F2 +
      V(1, I) * G1 * TT(I) + V(1, I + 1) *
      G2 * TT(I)
586: Y = P(2, I) * F1 + P(2, I + 1) * F2 +
      V(2, I) * G1 * TT(I) + V(2, I + 1) *
      G2 * TT(I)
588: LPRINT "D"; X; ", "; Y; U = U + W
      9
590: NEXT J; NEXT I
592: LPRINT "D"; P(1, M); ", "; P(2, M)
594: RETURN
600: FOR I = 1 TO M; Q5(1, I) = T(I); Q
      5(2, I) = H(I); NEXT I
605: M1 = M + 1; FOR I = 2 TO M1; P5(1
      , I) = Q5(1, I - 1); P5(2, I) = Q5 (2, I
      - 1); NEXT I
610: P5(1, 1) = P5(1, 3) - 0; P5(2, 1) = P5
      (2, 3) - 0; P5(1, M + 2) = 1 + P5(1, M
      ); P5(2, M + 2) = 1 + P5(2, M)
615: LPRINT CHR $ & 1B; CHR $ (&
      30 + O)
616: LPRINT CHR $ & 1B; "b"; LPRI
      NT "M"; P5(1, 2); ", "; P5(2, 2)
618: FOR I = 1 TO M - 1
620: FOR J = 1 TO 5; T1 = J * 0.5 / (5 + 1)
      ; F1 = 4 * T1 * T1 - T1 - 4 * T1 * T1
      * T1; F2 = 1 - 10 * T1 * T1 + 12 * T1
      * T1 * T1
622: F3 = T1 + 8 * T1 * T1 - 12 * T1 * T1

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      *T1, F4 = 4 * T1 * T1 * T1 - 2 * T1
      * T1
624: PX = F1 * P5(1, I) + F2 * P5(1, I + 1)
      + F3 * P5(1, I + 2) + F4 * P5(1, I + 3)
626: PY = F1 * P5(2, I) + F2 * P5(2, I + 1)
      + F3 * P5(2, I + 2) + F4 * P5(2, I + 3)
628: LPRINT "D", PX, ",", PY; NEXT J
630: LPRINT "D", P5(1, I + 2), ",", P5(
      2, I + 2); NEXT I; RETURN
640: R8 = INT ((TJ - INT TJ) * 100)
645: R6 = (10000 * TJ - 10000 * INT TJ -
      R8 * 100) / 30
655: TJ = 12 * (INT TJ - TI) + R8 - R7 +
      R6 - R5; RETURN
700: DATA "A", 23, 86.0901, 0, 86.0917,
      1.4, 86.1023, 2.6, 86.1113, 2.9, 86.12
      03
705: DATA 4.0, 86.1224, 3.2, 87.0108, 3
      .8, 87.0124, 4.4, 87.0303, 5.0, 87.031
      9, 5.0, 87.0406
710: DATA 5.9, 87.0423, 6.2, 87.0511, 6
      .7, 87.0527, 7.2, 87.0626, 7.8, 87.082
      4, 8.5, 87.1029
715: DATA 9.7, 88.0316, 11.0, 88.0524,
      11.1, 88.0730, 11.6, 88.1005, 11.7, 89
      .0314, 12.6
717: DATA 89.0814, 12.7
718: DATA "B", 22, 86.0901, 0, 86.0917,
      1.2, 86.1113, 2.8, 86.1203, 4.1, 86.12
      24, 3.5, 87.0108
720: DATA 3.9, 87.0124, 5.0, 87.0303, 5
      .0, 87.0319, 5.0, 87.0406, 5.5, 87.042
      3, 5.7, 87.0511
722: DATA 6.2, 87.0527, 6.8, 87.0626, 7
      .4, 87.0824, 7.7, 87.1029, 8.9, 88.031
      6, 10.7, 88.0524
724: DATA 10.7, 88.0730, 10.7, 88.1005
      , 10.9, 89.0314, 11.8, 89.0814, 11.6
726: DATA 23, 86.0901, 0, 86.0917, 2, 86
      .1023, 4, 86.1113, 6, 86.1203, 8, 86.12
      24, 10, 87.0108
728: DATA 12, 87.0124, 14, 87.0303, 16,
      87.0319, 18, 87.0406, 20, 87.0423, 22,
      87.0511, 24
730: DATA 87.0527, 25, 87.0626, 28, 87,
      0824, 28, 87.1029, 28, 88.0316, 28, 88.
      0524, 28
732: DATA 88.0730, 28, 88.1005, 28, 89.
      0314, 28, 89.0814, 28

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参 考 文 献

- 1 陆润民等. 计算绘图. 清华大学出版社, 1988
- 2 王能超. 数值分析简明教程. 高等教育出版社, 1984
- 3 陈龙飞. 工程测量. 同济大学出版社
- 4 SHARP CE-515P使用说明及技巧

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动载; P_x 和 P_z 代表钻头上侧向力和正压力;
 M 代表扭矩, M_{\max} 表示钻头上扭矩最大波
 动值; U 表示钻柱的弹性储能。

(2) 长度: l 表示钻柱弯曲半波长;
 L 表示钻柱总长度; b 表示钻头最大振幅;
 u_{\max} 表示钻柱纵振最大振幅; S_{\max} 表示钻柱

扭振最大振幅;

(3) 频率及转速: 钻柱纵振固有频率
 为 P_0 , 扭振固有频率为 P_t ; 转速为 N , 临界
 转速表示为 N_1 。

(4) 其它: m 表示钻柱的质量; β 代表
 钻头与钻孔轴线的夹角; K 表示刚度; n 表示
 孔底地层的破碎系数(与钻头结构有关)。