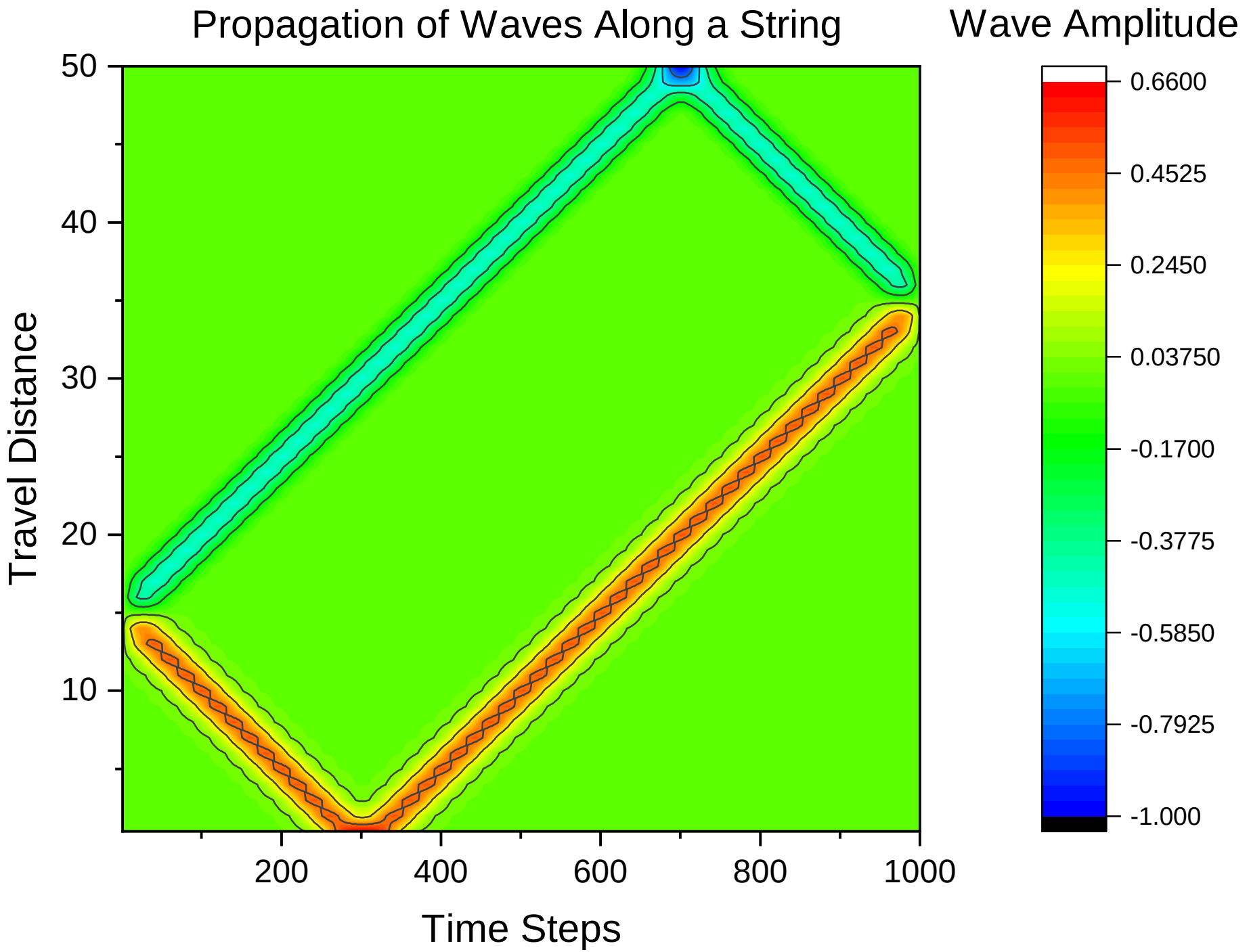
Propagation of Waves Along a String
Wave Amplitude
0.6600
0.4525
0.2450
0.03750
-0.1700
-0.3775
-0.5850
-0.7925
-1.000
Travel Distance
50
40
30
20
10
200
400
600
800
1000
Time Steps

```
      program string
      real y(1000,3)
      x0=0.3
      sigma=1000.0
      open(7,file="wave.v2")
111   format(2 (2x,e12.5))
      open(8, file="matrix.v2")
112   format(1000 (2x,e12.5))
      print*, "Enter the number of time steps"
      read(5, *) nts
      y=0.0
      do i=2,999
          x=0.001*(i-1)
          y(i,1)=exp(-sigma*(x-x0)**2)
          y(i,2)=y(i,1)
      enddo
      do ii=1, nts              ! time steps to make
          do i=2,999
              y(i,3)=y(i+1,2)+y(i-1,2)-y(i,1)
          enddo
          y(1,3)=0.0
          y(1000, 3)=0.0
          do i=1,1000
              do nt=2,3
                  y(i, nt-1)=y(i,nt)
              enddo
          enddo
          ni = ii/20
          si = 0.05*ii
          if (abs(ni - si) < 1.0e-6) then
              print*,ii
              write(8,112) (y(i,3), i = 1,1000)
          endif
      enddo                     ! time steps to make

      do i=1,1000               ! data output
          x=0.001*i
          write(7,111) x,y(i,3)
      enddo
      end
```