



## The Dual Spaces of the Sets of Difference Sequences of Order $m$

**Authors:** [C.A. Bektas](#), [Mikhail Et](#),

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**Abstract:** The idea of difference sequence spaces was introduced by Kizmaz [5] and the concept was generalized by Et and Çolak [3]. Let  $p = (p_k)$  be a bounded sequence of positive real numbers and  $v = (v_k)$  be any fixed sequence of non-zero complex numbers. If  $x = (x_k)$  is any sequence of complex numbers we write  $\Delta_v^m x$  for the sequence of the  $m$ -th order differences of  $x$  and  $\Delta_v^m(X) = \{x = (x_k) : \Delta_v^m x \in X\}$  for any set  $X$  of sequences. In this paper we determine the  $\alpha$  -,  $\beta$  - and  $\gamma$  - duals of the sets  $\Delta_v^m(X)$  which are defined by Et et al. [2] for  $X = \ell_\infty(p)$ ,  $c(p)$  and  $c_0(p)$ . This study generalizes results of Malkowsky [9] in special cases.



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