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On frequent hypercyclicity.

F. Bayart and S. Grivaux have recently introduced a very interesting new concept in hypercyclicity, that of frequently hypercyclic operators. Recall that a vector x in a Fréchet space X is called hypercyclic for an operator T on X if its orbit $\{x, Tx, T^2x, ...\}$ is dense in X, that is, if the orbit meets every non-empty open subset U of X. Now, Bayart and Grivaux call x *frequently hypercyclic* for T if its orbit meets every non-empty open subset U of X often in the sense that each set $\{n \in \mathbb{N} : T^n x \in U\}$ has positive lower density. The operator T is called frequently hypercyclic if it possesses a frequently hypercyclic vector. In two fundamental papers, Bayart and Grivaux have provided an extensive study of this new notion. In the talk we shall present joint work with A. Bonilla and with A. Peris. We address some problems posed by Bayart and Grivaux, and we present new examples of frequently hypercyclic operators on spaces of analytic functions.