Madeleine McCann inquiry focuses on mobile phone data

British detectives say the key to Madeleine McCann's disappearance could emerge from a "targeted attack" on mobile phone data from thousands of people who were around the Portuguese resort of Praia da Luz at the moment she went missing.

The line of investigation was disclosed as it was announced that Madeleine's parents, Gerry and Kate, would appear on the BBC's Crimewatch programme with the British detective in charge of the case.

The programme will broadcast a reconstruction of the events before Madeleine disappeared and the McCanns will make an appeal for anyone who was in the resort at the time, and has yet to come forward, to contact police.

Similar appeals will be broadcast in Germany, the Netherlands and Ireland.

The "footprints" from the phones of holidaymakers, staff and local people who were in the vicinity of the McCanns' holiday apartment in Praia da Luz when the three-year-old disappeared in May 2007 are being examined and cross-referenced with other information coming into the British inquiry team, officers have said.

Forty-one individuals from several countries including the UK are being investigated as persons of interest by the Metropolitan police, and official requests for assistance have been sent to 31 countries including Portugal to identify other people whose mobile footprints have emerged in the sifting and resifting of tens of thousands of documents, communications data and eyewitness statements.

The new British investigation began as part of a £5m review of all the evidence after an appeal for help by Madeleine's parents to David Cameron.

It is not known how many of the 41 individuals – among them 15 Britons – are considered suspects.

Many are people who need to be questioned in order to be eliminated from the inquiry. But detectives are known to have uncovered new leads and theories about what happened to Madeleine while her parents were eating a meal with friends at a restaurant in the resort. It is known that some of the people of interest are sex offenders who were in the area at the time. Police will analyse mobile phone data to track any calls that might have been made from the resort to others outside it, as they investigate whether there was any kind of ring involved in the girl's suspected abduction.

Detective Chief Inspector Andy Redwood, who is leading the investigation, said the analysis of mobile phone data originally collected by the Portuguese had gone beyond the stage of a general trawl, and was now being cross-referenced with other information.

His team have been cross-referencing tens of thousands of documents, communications data and witness statements from the Portuguese investigation, from eight private detectives and from the Leicestershire force.

"The mobile phone data is a substantial amount of data and a significant amount of it is unattributed. Putting this with layers and layers of other information, we are carrying out a targeted attack on the information. We are doing this in a focused way, working back from the moment that Madeleine was found to have gone. It is like pulling back the layers of an onion. Every hour my officers work on this case is designed to get to that very moment and find out what happened," he said.

Six detectives in Portugal are working with the Met and making inquiries on their behalf. But the plan to send a team of Met officers to work out of Portugal has yet to be acted upon, as delicate negotiations continue with the Portuguese authorities, who closed their investigation and have refused all appeals to reopen it.